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The Association does not accept the responsibility for the opinions of contributors. Offensive personalities must be avoided.


## THE NEED OF AN ASSOCIATION HOME.

AS long as the A. Ph. A. continues to represent pharmaceutical progress all of its needs will probably never be satisfied; but one of these, which is becoming more emphatic each year, and one which it should be possible to meet, is that of a permanent and properly equipped association home.

Hitherto the home of the association has been wherever the General Secretary has chanced to reside, and this lack of settled habitation has interfered not only with association work generally, but especially with the making of the historical and other collections which such an association might reasonably be expected to possess.

Its archives and historical collection, such as they are, are stored at the Unversity of Wisconsin, at Madison, while its official records and stock of proceedings are stored partly at the office of the General Secretary and partly with the publishing house which printed them. In the sixty-one years of its existence the Association has, no doubt, received a large number of books and scientific and professional publications of various kinds, but these have been disposed of almost as fast as received, and there is now only an aching void to represent what should be a library of respectable dimensions; and lamentable to say, the society does not even possess a complete set of its own publications.

Among these losses we must count not only the collections which have been dissipated, but the greater and more valuable collections of books and historical documents which the A. Ph. A. might have accumulated if it had possessed a place for their permanent preservation.

Not only should the association possess a permanent place for its archives, his-

torical collection and library, but it should have at its command suitable laboratories where the formulas proposed for inclusion in the National Formulary could be tested out, and where many of the mooted questions of U. S. P. importance could be considered. Outside of the field of official preparations, there are also a number of investigations of importance to the dispensing pharmacist which could receive attention. Formulas in pharmaceutical publications are as "thick as hops," and are no doubt selected from the best available sources, but often, very often, they are either unworkable, or yield unsatisfactory products. Evidently some of them, like the German's camel, have been evolved wholly from the inner consciousness of their authors.

With the aid of a properly equipped experimental laboratory the proposed A. Ph. A. recipe book might be expected to contain only tested and workable formulas.

A building sufficient for the purposes outlined should, of course, be located in some city where there are facilities for the publication of the Journal and National Formulary. It should be a fireproof structure, and should be architecturally in keeping with the purposes for which it is intended.

At a rough guess, the cost of the completed structure should not exceed $50,000.00, though it should be erected in such a way as to permit of additions and expansions as needed.

With its rapidly growing membership and revenues, the Association could without much effort provide for the maintenance of such a plant, but the first cost of its erection and equipment would have to be met otherwise; and since the A. Ph. A. has given its services freely to the whole of American pharmacy, why should not the whole of American pharmacy contribute to a plant which would enable the Association to greatly increase its usefulness to the cause which it represents?

In the erection of such a structure pharmacy would not only be making provision for the satisfaction of its present and future needs, but it would also be providing a memorial for the many noble spirits, as Procter, Parrish, Maisch, Ebert, and a host of others who have enriched and dignified American pharmacy.

The *Journal* will be glad to publish the thoughts of the members upon this subject.

J. H. BEAL.

## HOW SOME DOCTORS VIEW U. S. P. AND N. F. PROPAGANDA.

IT might perhaps be of advantage to pharmacists to become acquainted with some of the objections raised by doctors to the U. S. P. and N. F. Propaganda, as they have become apparent to one who has busied himself in behalf of these efforts.

Some doctors object to the therapeutic information that is gratuitously administered to them by the druggists. What, they say, do druggists know about therapeutics? And, I must confess, that some of the therapeutic ideas advanced by pharmacists in this connection, though taken from text-books, are antiquated and not in keeping with advanced conceptions. Would it not be better if pharmacists confined themselves in their literature intended for doctors to the discussion of

things that druggists really know better than doctors, e. g., pleasant administration?

Quite a number of doctors feel that the druggist is in this movement merely for the sake of dollars and cents, that the same commercialism lies behind it that leads him to "counter-prescribing," to indiscriminate refilling of prescriptions, and to substitution.To antagonize this objection, propaganda for *ethical pharmacy* should accompany the U. S. P. and N. F. propaganda. By the way, what is ethical pharmacy? Does anyone know of a code of pharmaceutical ethics? And if not, is it not time that such a code be devised?

Some doctors believe that the "get-together" movement should mean a declaration of willingness on the part of the druggist to advance the interests of doctors, just as he desires the doctors to advance the interests of the druggists. Should not the larger aims of pharmacists and physicians be the same? Should they not be united in battling for the most efficient treatment of the sick, and the greatest possible protection of the health of the well? I am sure pharmacists would find the physicians willing and powerful allies in any effort to raise the educational requirements of pharmacists, should the pharmacists desire advance in that direction. Why should not pharmacists take active interest in the efforts of the medical profession toward higher medical education and the diminution of the baneful activity of the quack? The better educated the doctor, the less will he be in need of U. S. P. and N. F. propaganda.

Prevention of disease is the highest and most altruistic aim of the medical profession. . Every case of disease prevented means a loss of money to the doctor as well as to the druggist, and yet doctors have ever united their efforts toward the prevention of disease. Why should not druggists join them in these efforts? Would it not be more nearly in keeping with the "get-together" spirit if druggists aided instead of combatting the establishment of a national department of health; if they united with the medical instead of the anti-medical forces in this fight?

BERNARD FANTUS, M. D.

# Book Reviews

PHARMACEUTICAL BACTERIOLOGY, WITH SPECIAL REFERENCE TO DISINFECTION AND STERILIZATION. By Albert Schneider, M. D., Ph. D., (Columbia University), Professor of Pharmacognosy, Histology and Bacteriology California College of Pharmacy; Pharmacognocist U. S. Department of Agriculture; 238 pages, with 86 illustrations. Cloth. P. Blakiston's Son & Co., Philadelphia, Pa. 1912.

This text book on Bacteriology especially designed for the use of pharmacists and students of pharmacy appears at a most opportunte time. Short courses in bacteriology are being introduced in nearly all schools of pharmacy, and a knowledge of certain parts of the science is now expected of pharmacists. Essential is a knowledge of the preparation and sterilization of culture media, reagents, stains and special solutions for physicians, of the sterilization of certain pharmaceutical preparations and of the standardization of disinfectants. Likewise the fundamentals of the morphology and physiology of bacteria and related organisms and their relation to the causation and cure of disease, to medicines and food, to the arts and industries.

Schneider's Pharmaceutical Bacteriology is most excellently designed to serve its purpose. The range of chapters is as follows: General Introduction; Historical Morphology and Physiology of Bacteria; Range and Distribution of Bacteria; Bacteriological Technic; Bacteria in the Industries; Immunity, Bacterial Activities and Bacterial Products; The Manufacture and Use of Sera and vaccines; Yeasts and Moulds; Protozoa in Disease; Disinfectants and Disinfection; Food Preservation; Insecticides; Sterlization and Disinfection in the Pharmacy; Communicable Diseases with Suggestions of Preventive Medicine; A Bacteriological and Microscopical Laboratory for the Pharmacist.

The discussion of bacteriological technic is especially good; the directions for the preparation of media and stains being not only full, simple and accurate, but the very latest and most improved methods are given. The author follows a rather original plan in presenting this most important subject. The chapter on The Manufacture and Use of Sera and Vaccines is very well written, and is of especial value to pharmacists many of whom are so slightly informed on this important part of their business.

The discussion of disinfectants and of the principles of disinfection and sterilization and of the practical application of these principles in the pharmacy would alone make the book well worth while to every pharmacist.

The last chapter, on the Bacteriological and Microscopical Laboratory for the Pharmacist, brings fairly before every pharmacist the question which has already entered the minds of many thinking men of our profession. Should there not be a public distinction made between professionally trained Pharmacists and medicine-selling Druggists?

The work does not intrude into medical bacteriology, but does include those

special features a pharmacist should know in regard to this most important modern science.

Criticism of a point or feature here and there may be offered as is always the case of any work done by mere man. For instance, the author says in his introduction that "Bacteriology must not be made discouragingly difficult to the pharmacist," and yet in his very first chapter on the history of the science he mentions the names of no less than 92 persons with a date and a reference to their accomplishments. If the average pharmaceutical student of bacteriology learns the names of five of the great discoverers in the realms of this science he has gone the limit.

While nearly all of the book is written in a simple yet dignified style the short chapter on the Range and Distribution of Microbes appears to be too simple, almost childish, with much repetition, and includes several statements very subject to doubt.

It would seem also as though the arrangement of chapters could have been improved.

However, on the whole the book is fine and will undoubtedly find a wide circulation in this country.

E. N. GATHERCOAL.

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METHODS OF ORGANIC ANALYSIS. By Henry C. Sherman, Ph. D. Professer of Food Chemistry in Columbia University. Second Edition, rewritten and enlarged. Illustrated. Cloth, 8vo. $2.40 net. The Macmillan company, New York.

Organic Analysis may be treated as a mass of subjects arbitrarily arranged, or, following the new system of organic chemistry, it may be logically developed into system similar to the ones we have followed in our inorganic chemistry. The latter, needless to say, is the satisfactory teaching method, and Professor Sherman has followed it well in this new edition, just off the press.

Beginning with the alcohols, the book takes up in succession their oxidation products and allied substances, the aldehydes and acids, and the carbohydrates, the fatty acids and their derivatives, fuels, proteins, including grains and milk, and preservative agents. The treatment in each case is such that the book may be used not only as a manual for students, but as a practical working handbook for the commercial laboratory.

In extending the scope of the work, the new matter includes "a chapter on solid and liquid fuels, and sections on industrial alcohol, drying oils, crude petroleum, the new international methods of glycerin analysis, and quantitative methods for the testing of enzymes." The results of the latest researches have been embodied in these chapters, much of the work having been done in the Havemeyer Laboratories by Professor Sherman and his students.

The bibliography following each chapter is admirably arranged in two divisions: first, a list of available works of reference; second a chronological list of articles bearing on the subjects treated in each chapter. The bibliography contrasts vividly with a manual which the writer had occasion to examine some time since, in which frequent mention was made of well known analytical

methods, and others not so well known, without a single reference being given which would make it possible to check up results, or even to secure details of the method.

In the writer's opinion, the chapter on Ultimate Organic Analysis should have been left at the beginning of the book, as in the first edition, as a few exercises in ultimate analysis give the student facility in the quantitative handling of organic substances.

We congratulate Professor Sherman on his revision of his most excellent text-book, and hope that it will find as extensive a use in class room and laboratory as is deserves.

GEO. D. BEAL.

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THE REVISED PHARMACEUTICAL SYLLABUS, as outlined by the Faculty of the Philadelphia College of Pharmacy. Mimeograph copy; 80 pages, 8 x 15 inches.

The revisions that are taking place in matters pharmaceutical are hopeful signs of the time. The interest manifested in the revision of the Pharmaceutical Syllabus portends well for the future and is important as pointing to the professional pathway that pharmacy in America is destined to travel.

The first edition of the Pharmaceutical Syllabus was intended to cover the period from 1910 to 1915, but an earlier revision was deemed necessary and this is now in process and in charge of a National Committee of 21 composed of 7 members appointed by the Conference of Pharmaceutical Faculties, 7 appointed by the National Association of Boards of Pharmacy and 7 by the American Pharmaceutical Association.

The faculty of the Philadelphia College of Pharmacy have outlined the instructions to pharmacy students as given in this pioneer of the American schools of pharmacy and present to the National Committee on Syllabus this mimeographed book of 80 pages each 8x15 inches as a basis for the proposed revision. In doing so a signal service has been rendered and this valuable "constructive criticism" merits the careful consideration of the National Committee and should have an important influence in shaping the revision.

As a preface, Mr. George M. Beringer, in his dual capacity as Chairman of the Board of Trustees of that college and as a member of the National Committee on Syllabus, contributes a letter of transmission. In this a number of general topics are presented and several important issues are raised. The use of the word "pharmacology" as synonymous with "pharmacy" as is done throughout the first edition of the Syllabus is questioned and it is argued that modern correct usage differentiates these as having separate and distinctly different applications and that pharmacology is more correctly and specially used as the synonym of pharmacodynamics.

The two years' course as outlined in the first edition of the Syllabus is characterized as a fundamental error and a plea is presented in favor of a re-arrangement of the instruction outlined into a three years' course. It is argued that the instruction necessary for pharmacy students is more than can be properly imparted by the teacher or mastered by the student in the time allotted and that the welfare and success of the student as well as the professional advancement of

pharmacy demand an extension of the course to three years. This plea is a timely presentation of a condition that confronts the schools and faculties who are honestly endeavoring to educate pharmacists. With the conditions recognized and the disease diagnosed, pleas and arguments should not be necessary to convince an intelligent committee of the necessity of correction and the application of the proper treatment.

The writer claims "that undue consideration is given in the Syllabus to the subjects of therapeutics and physiology, and that these have been treated at undue length, and from the view point of a physician rather than from the needs of a pharmacist." "We should restrict instruction in physiology to concise descriptions of functions and actions and omit the details of anatomical structure and limit therapeutics to the definitions of terms describing the actions of drugs and such explanations of these actions as are essential to the performance of the duties of the pharmacist." The time thus saved he believes could with benefit be applied to pharmacognosy.

He recommends the introduction of instruction in the physiological assaying of Drugs, and also, that an elementary course in bacteriology be outlined giving the essentials of that important branch of science.

Each member of the faculty has contributed to the body of the book a revision of that part of the Syllabus relating to the subjects that he teaches, with criticisms and suggestions for additions, deletions and changes.

Dr. C. B. Lowe in his consideration of the course in physiology suggests a number of changes in the sequence of treatment of the topics. He recommends the introduction of instruction covering the following subjects: animal heat, sight, speech, hearing, taste and touch.

He suggests that the medical terms used, especially those used to describe the reaction of drugs upon tissues should be defined, and in each case examples of drugs possessing such action be given as illustrations.

Professor Henry Kraemer presents a recast of the part of the Syllabus relating to botany and pharmacognosy. He separates as histological botany much that is included in the first edition of the Syllabus as pharmacognosy, and claims that "pharmacognosy is today recognized as a distinct science" with definite limits and with botany as a necessary preliminary study. For this reason he arranges a scheme with all botanical instruction included in the first year.

He criticizes the division of pharmacognosy into histological pharmacognosy and commercial pharmacognosy. In his opinion "it is impractical during one part of the course to consider the anatomy of drugs and then during another semester to consider commercial varieties, adulterations, etc., of the same drug." "It is self-evident that the structure, the adulteration, and also the study of the crude drug and the powdered drug should all be taught at the time the pharmacognosy of that drug is being considered." He has outlined the subjects of botany, pharmacognosy and microscopy to cover a complete course of three years and in the third year he includes instruction in the microscopic examination of urine and such clinical work as the pharmacist is commonly called upon to perform.

Professor Freeman P. Stroup outlines a short course in physics, such as commonly is given to pharmacy students where the instruction in this branch is re-

stricted to simply what is deemed necessary as a foundation for pharmaceutical chemistry. That the first edition of the Syllabus should devote so much space, for example, to instruction in physiology and therapeutics, as instruction proper to pharmacy students, and then treat within such narrow limits a science on which many of the daily operations of the pharmacist is based, appears inconsistent and open to criticism.

Professor Samuel P. Sadtler in comparing the instruction in chemistry as given in the Syllabus and as outlined in his proposed revision criticizes several of the statements of the Syllabus. The requirement for laboratory exercises in elementary physics is practical only under conditions that do not prevail in colleges of pharmacy, namely, especially equipped laboratories, small groups of students and a number of qualified instructors.

He specifically criticizes the arrangement in the Syllabus of the course in General Inorganic Chemistry with Mendelejeffs Periodic Law as the basis of the arrangement. He considers this an unsatisfactory presentation of the subject to beginners. He illustrates his criticism thus:

"The halogen group is stated to contain chlorine, fluorine, bromine, iodine, and manganese," simply because manganese in the periodic system happens to come in the seventh "natural group" with the true halogens. Boron and aluminum are considered one after the other as in the third group, although fundamentally widely different in all physical and chemical characters. The sixth group, classified as hexads without any qualification, starts with oxygen, followed by chromium and then by sulphur, selenium and tellurium. Is this a desirable way to get the young chemical or pharmaceutical student to understand the important and essential facts and relationships of these elements? Oxygen is not hexad in any of its organic compounds that we know of, and not certainly in any compound organic or inorganic. The eighth group called octads, begins with the iron family, which is made to include iron, nickel, cobalt, and copper, next the silver family, which includes silver, ruthenium, palladium, and rhodium, and then the platinum family, which includes platinum, osmium, and iridium. All these are called octads. This is in the first place a distortion of the periodic system, as taught in standard and authoritative text-books, and in the next place it substitutes a still little-understood theory for proper experimentally supported analogies with regard to these elements."

Professor Frank X. Morek outlines a course on analytical chemistry. As notable innovations, might be mentioned, "The Introductory on Analytical Chemistry Principles" and the "Course on Chemical Mathematics."

Professor Joseph P. Remington suggests a number of additions to that part of the Syllabus relating to Pharmacy, such as an article on pharmacopoeial nomenclature including orthography and definitions of pharmacopoeial terms, instruction for the correct reading of graduated measures; use of specific gravity tables; tests for complete extraction, etc.

The course in Operative Pharmacy as outlined by Professors Remington and E. F. Cook is replete with rules and regulations covering books, apparatus, cleaning, dispensing, etc. It considers each class of preparations with definitions, methods and with actual preparation of U. S. P. and N. F. formulae. It covers, as well, a number of non-official formulas including many toilet preparations.

The desirability and practical value of such instruction to the future druggist is appreciated, even though such may not be considered as properly coming within the limits of examination by Boards of Pharmacy.

A section is devoted to sterilization and the methods of accomplishing the same; a timely introduction. Compounding of prescriptions is outlined at length with rules and methods in considerable detail.

The course in commercial pharmacy has likewise been outlined by Professors Remington and Cook and is one of the features of the proposed Revised Syllabus and presents many subjects relating to the business side of the pharmacist, some of which druggists too frequently find have been sadly neglected in their early training. The student who intends to follow the drug business for a livelihood needs just such practical training for his future career. This feature of the book might well replace the isolated pages on this subject in the present book.

Space does not permit an extended review of this contribution to the revision of the Pharmaceutical Syllabus, but the above references to a number of the salient features will serve to show its value to the Committee of Revision and the consideration it merits. Whether or not we agree with the conclusions of the several authors, the suggestions obtained by a careful perusal will well repay the teacher and the pharmaceutical examiner.

J. W. ENGLAND.

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## INHALED DUST AND THE RESPIRATORY TRACT.

Naturally enough the respiratory tract is taken to be the chief path of invasion for the dust we breathe in. The pathology of the inhalation diseases—anthracosis, siderosis, chalicosis—bears testimony to the burdens which may thus be put on the lungs. In considering palliative measures and preventive devices to be applied in industrial work it has become necessary to learn something more exact regarding the travels of inhaled dust in the organism as well as the actual quantities which represent dangerous or insanitary limits. Investigations which the Würzburg hygienist, Professor K. B. Lehmann, has conducted along these lines with his pupils have furnished some unexpected facts. They have demonstrated that the great bulk of the inspired dust finds its way into the stomach, not into the lungs, as has been confidently assumed. Obviously the dust is regularly caught by the nasal and pharyngeal mucosa and the dust-laden secretion then swallowed. All of the inhaled dust was retained by the oral or nasal passage, yet less than a quarter of it entered the lungs at the best.

In case of insoluble particles the gastro-intestinal path may furnish a most satisfactory channel for the subsequent elimination of the dust from the body; but soluble dust finds a peculiarly favorable chance for absorption along the same route, and the opportunity for chronic intoxications is thus easily established. In any event, the lungs escape the major part of the initial irritation.—*Journal A. M. A.*

# Section on Scientific Papers

**Papers Presented at the Sixtieth Annual Convention**

## MINUTES OF THE SECTION ON SCIENTIFIC PAPERS.*

FIRST SESSION—Tuesday Afternoon, August 20, 1912.

The first session of the Section on Scientific Papers was, in the absence of both Chairman Richtmann and Secretary LaWall, called to order by Associate F. R. Eldred, of Indianapolis, at 3:30 P. M., in the ball-room of the hotel, on the eighth floor. Freeman P. Stroup, of Philadelphia, acted as Secretary.

Mr. Eldred stated that the Chairman had given notice a few days ago that he would not be present, and had sent no address. Also, there would be no report from the Secretary, who was likewise absent. He asked the members to excuse the irregularities that might occur in the program. A number of papers had not been received until this afternoon.

Continuing, the Acting Chairman said he wished to repeat what he had said last year, that the system of arranging the program for this Section was wrong. He thought the present circumstances justified the position he had taken. It was the custom to accept papers up to the last minute before the Section was called to order, and there could be no definitely outlined program on that account. No one knew before coming to the meeting what papers or subjects were to come before the Section. Therefore, it seemed very desirable to include in the By-Laws some provision which would necessitate the titles of papers, at least, being in the hands of the Chairman or Secretary of the Section at some definite date before the meeting; and further, that the papers complete should be in the hands of the Chairman or Secretary before the meeting of the Association.

After this explanation, the Chair stated that the first order of business would be the reports of standing committees, and the first of these was the Committee on Drug Reform. This report was presented by Chairman L. E. Sayre. (See September Journal, p. 1029.)

Mr. Sayre said that Mr. Schneider had sent to him recently some suggestions, which, with the permission of the Section, would be added to the report.

The Chair called for action, and H. H. Rusby, duly seconded, moved to receive the report, to take the usual course.

Prof. Rusby said it had occurred to him there was one way by which the evil of uninspected drug stocks could be reached. Nearly all the drug statutes gave the administrators of the law the right to enter places where medicines were kept for sale and take samples; and if it appeared that these medicines were there for the purpose of being sold, prosecution could be had just as if they had actually been sold and seized in the process. One difficulty was that the supply houses

* Papers and reports not appearing here will be printed separately.

did not keep these drugs under their proper names. Tincture of Belladonna deficient in strength was not sold as such, but under a number, and the physician ordered by that number. But there was in the Federal statute a very important clause which was overlooked by a great many people, and that was, that they were liable to punishment for having in their possession anything which was an imitation of a product of the Pharmacopoeia. If it was clear that it was an imitation, and was intended to be, that person could be prosecuted and punished. That was a very important provision, and he thought it would be well for the States to follow that law in enacting similar legislation.

R. H. Needham, of Texas, asked Dr. Rusby what he would do concerning the strength of certain specific tinctures, like belladonna and veratrum viride.

Dr. Rusby responded that it was supposed that anything of this sort was an entity in itself. Certain people wanted these things. But if the tincture of veratrum viride, for instance, was only half strength, — say 56 per cent. or 33 per cent., — it would be clear that it was a fraudulent imitation, and that person could be punished.

Mr. Gordon stated that there was a homoeopathic pharmacopoeia which was recognized by homoeopathic practitioners as official just as was the United States Pharmacopoeia by allopathic physicians. The homoeopathic standards of strength were based on definite standards of their own just as are the U. S. P. standards. For example, the so-called "mother tincture" of a drug was required to be made from the green, or fresh, drug, but to secure uniformity of strength it was directed that the fresh drug used be first dried to a constant weight and the amount of moisture contained in it thereby estimated, then the tincture should be made from such a proportion of the fresh drug as would correspond with the required percentage of dried drug in the finished preparation. Belladonna was mentioned as an example; some belladonna leaves containing more moisture than others, so that a given weight of one sample of green leaves would contain more water than another sample and hence the tincture made from them by weight would not be of the standard strength. The same standard was set for other preparations derived from vegetable drugs, that is, while the alkaloidal strength was not required to be determined the proportion of plant moisture was, this being very necessary in the case of fresh, succulent plant drugs. The question of the value of such standards was not discussed by Mr. Gordon, the purpose of his remarks, he said, being solely to bring out the point in discussion, that the homoeopathic physician had authoratative standards for his preparations.

In reply to a question from Mr. Scoville as to the legal standing of the homoeopathic pharmacopoeia Mr. Gordon replied that it was his impression that it was the legal standard for homoeopathic preparations in the State of Pennsylvania, just as was the U. S. P. for allopathic preparations, but could not state this positively. He said that the pharmacopoeia to which he referred was issued and sanctioned by the American Institute of Homoeopathy, a body which had a relation to this standard very much like the American Pharmaceutical Association has to the National Formulary. He also mentioned that there is another homoepathic pharmacopoeia issued by one of the oldest manufacturers of homoepathic preparations, in fact the two books might be compared to our own two "dispensatories," both being guides to the physician and pharmacist.

Prof. Sayre said he did not think it would be wise to discuss this paper at great length, as the whole afternoon could be occupied with it. As he remembered, the Federal law contained a paragraph to the effect that any drug or medicine not official in the United States Pharmacopoeia or in the National Formulary should conform to its own standard; meaning by that that if the manufacturer put out, for example, an elixir of belladonna, that must have at least belladonna in it; and there should be, and it was possible to have, a standard fixed for a great many of these unofficial preparations. Whether in the National Formulary or not, that was the spirit of the administration of the State Food and Drugs Law in the State of Kansas. They claimed that even though the preparation was not official in the Pharmacopoeia, or in the National Formulary, the preparation should have some sort of standard of its own — even patent medicines. They considered that if they found any patent medicines showing a very evident deterioration which could be determined, then it did not come up to its own accepted standard. If any tincture not mentioned in the U. S. Pharmacopoeia should be put on the market, that tincture should have in it the things it claimed. Mr. Sayre said he had been guarded in presenting any recommendation. He thought the Chairman of the Section should put to a vote whether this report on Drug Reform met the approval of this Association. If not, then the influence of this committee was practically null and void.

Prof. Schneider requested leave to present a supplemental report. The Chairman of the committee, himself and other members, were satisfied that the subject was an enormous one, and the ramifications almost infinite; that the different sources and different conditions that were responsible for the situation were so numerous that it would be simply impossible to consider them at one meeting, or any number of meetings. The suggestions he had to make here might be looked upon as a summary of the situation that his committee had presented up to the present time. He then proceeded to read the following:

## SUGGESTIONS ON IMPROVING THE DRUG SITUATION IN THE UNITED STATES.

ALBERT SCHNEIDER.

The following brief statement is submitted as a supplement to the report by Prof. L. E. Sayre, Chairman of the Committee on Drug Reform.

As already stated by Professor Sayre, it would appear as though the committee has accomplished little or nothing in the way of actual results, as far as the drug situation in the United States is concerned. We have, however, collected very valuable information and data regarding conditions as they exist in the drug business—national, state, and local—wholesale and retail.

The examination of drugs imparts a considerable actual experience in the growing of drug plants, and has convinced the writer that due allowance must be made by officials empowered to administer the national and state drug laws for reasonable variation in the quality and appearance of crude vegetable drugs. It has also become evident that the purity rubric of the U. S. P. is far from satisfactory and that the methods of drug assay and testing must be modified and improved. It is furthermore evident, as has been emphasized in previous reports of this committee, that drug work (in national as well as in state laboratories) is neglected or side-tracked for the food work. This is certainly the case on the Pacific Coast. Most of the men in charge of Federal and State pure food and drugs laboratories know little or nothing about drugs, which explains why much of the drug work outlined and directed by them has no special value as far as the correction of the existing evils are concerned. There is yet another factor which should receive our serious consideration. There are

certain conditions governing the quality and purity of drugs which evidently cannot be modified and corrected by either Federal or State legislation. These can be suitably met by the proper city,town, county and other local regulations, rules and ordinances, assisted by local educational propaganda, but such efforts should be uniform and widely operative within the United States.

The above statements are based upon observation and study extending over a period of five years and more. Some of the details and results of these observations have been published in the Proc. A. Ph., A., and in the pharmaceutical journals.

The following recommendations are based upon the foregoing and submitted for consideration and action:

(1) That the A. Ph. A. urge immediate cooperation between the Revision Committee of the U. S. P., the Division of Pharmacology of the U. S. Public Health and Marine Hospital Service, the Bureau of Chemistry of the U. S. Department of Agriculture, and the Scientific Section of the A. Ph. A. for the purpose of bringing about the most satisfactory additions and changes in the methods of drug assay and drug examination to be embodied in the forthcoming editon of the U. S. P.

While this is being done in a measure, it is, nevertheless, believed that a prompt and more efficient cooperation of this kind will make the U. S. P. a more valuable standard of quality and purity of drugs and less liable to miscomprehension by judge and attorney.

(2) That the A. P. A. urge upon the Bureau of Chemistry of the U. S. Department of Agriculture a more equitable administration of the food and drugs division of the national pure food and drugs law, and that more attention be given to drug work in some of the Federal laboratories.

(3) That the attention of the Bureau of Chemistry be called to the importance of efficient import and interstate inspection and examination of drugs, particularly in the western and southern sections of the United States.

(4) That the A. Ph. A. urge a better cooperation between Federal and State pure food and drugs laboratories.

(5) That a more uniform and efficient administration of the pure food and drugs acts of the several States be urged.

(6) That the A. Ph. A. formulate a plan for local propaganda in bringing about a betterment in the drug situation.

(7) That the A. Ph. A. appoint a committee which shall draw up a detailed plan of action according to the preceding suggestions.

In endeavoring to carry out such a plan some disappointment in the attainment of results must be expected, but the educational value of such activities is considerable.

The Chair then put the vote upon the motion to receive the report, together with the supplemental report, to take the usual course, and it prevailed.

John M. Francis said all admired the initiative which had been taken by the great State of Kansas, from which so many good things came. There was perhaps no question that confronted the Association that was a greater source of friction, dissatisfaction and discussion, than the one presented today. The report of this committee might practically be divided into two sections—first, those things of general consideration, treated by Mr. Schneider; second, and perhaps more important, that part treated of by Mr. Sayre, referring to the proper inspection of drug stocks in the hands of dispensing physicians. It seemed to him that the Section had three courses open to it: First, it might accept the report of the committee, and in the usual way have it embodied in the Proceedings. Second, it might endorse this report as a Section, and refer it to the Council, with the recommendation that it ask the American Pharmaceutical Association to endorse the report and the sentiments therein expressed. Third, it might go a step further, and ask the American Pharmaceutical Association, through the Coun-

cil, to place itself on record, not only as approving this proposed reform, but also to present it to all the various State Pharmaceutical Associations throughout the Union, asking them to take it up and continue this good work. There were three clear-cut courses to be pursued, two of them calculated to accomplish something — though calculated, perhaps, to create dissension between the two professions.

Mr. Needham suggested that Dr. Francis embody in a motion one of the several suggestions he had made.

Dr. Francis said that if it would help to crystallize the sentiment of the Section he would offer a motion to the effect that the Scientific Section of the American Pharmaceutical Association recommend that the Council of the Association present this issue to the Association as a whole, for its commendation.

Mr. Needham seconded this motion.

Dr. Francis, continuing, said his idea was, that this Section, through the Council, should present to the Association the sentiments expressed in this report made by Mr. Sayre, commending the recommendation that steps should be taken throughout the various States of the Union, whereby the stock of medicines in the hands of physicians should be subjected to the same legal supervision as those in the hands of druggists.

Prof. Vanderkleed seconded this motion, and said that in his opinion no more important action could be taken by the Association than this—not only with regard to the physician's stock, but looking to uniformity in the administration of food and drug inspection in the various States.

The Chair thereupon put the vote on the motion of Mr. Francis, as seconded and amended by Mr. Vanderkleed, and it was carried.

The Chair stated that the next report in order was that of the Committee on Drug Market, and that as Chairman E. L. Patch was not present, it would be read by the Secretary, which was done.

The Secretary also read a supplemental report, sent in by another investigator, but not received in time to appear in the regular report.

The reports were discussed by Messrs. Rusby, Puckner, Eldred, Gordon, Francis, Schneider, Vanderkleed and Sayre.

Mr. Sayre moved that the report be received and edited as suggested by Mr. Rusby. (Discussion will appear with the report.) Mr. Francis seconded this motion, and so did Mr. Scoville.

The Chair put the vote on the motion to receive the report of the Committee on Drug Market, after proper amendment by Mr. Rusby along the lines suggested in the discussion, and the motion prevailed.

The Chair said the next order of business was the report of the Committee on Physiological Testing, and Chairman Houghton not being present, he would ask the Secretary to read it.

Mr. Asher suggested that it had been the custom in the past to read these reports by title, and he thought the Section ought to get down to the reading of papers.

The Chair said that this report was of a little different character than the others, was brief, and was a scientific matter. It was a committee more properly entitled to report to the Section than any other committee, and he thought the report might be read in full.

The Chair called on the Secretary to proceed with the reading of this report, which he did.

The Secretary explained that there were two papers accompanying the report of the committee, one on the assay of cannabis sativa, the other one the blood pressure raising principle of the suprarenal glands. (This report appears elsewhere in this issue.)

Prof. Vanderkleed moved to receive and approve the report of the committee, and that the recommendation that the committee be empowered to cooperate with the Public Health and Marine Hospital Service and the Hygienic Laboratory be concurred in, and that it be declared the sense of this Section that this committee be continued. This motion was seconded by Mr. Asher and carried.

The Chair stated that this completed the reports which were to come before the Section, and the next order of business was the appointment by the Chair of a Nominating Committee to report the names of two candidates for each of the following offices: Chairman, First Vice-Chairman, Second Vice-Chairman and Secretary. This report was to be made at this session, and the candidates for the various offices were to be balloted upon at the last session. As such committee he named Mr. Asher, of New Orleans; Mr. Schneider, of San Francisco, and Mr. Charles Caspari, Jr., of Baltimore.

The Chair stated that the Section would now proceed to the reading of papers, and the first on the program were two by Messrs. Chas. E. Vanderkleed and Paul S. Pittinger.

Before taking up the reading of his paper, Prof. Vanderkleed explained that it had been written by way of carrying out the promise made at the Boston meeting that a series of experiments covering a year's time should be made concerning the susceptibility of the guinea-pig to the heart-tonic group. He did not come before the Section as a special pleader for any particular method, but simply to give the results of these experiments. In the absence of a blackboard, he would simply have to give the summaries, and when the papers were published, the members would have a chance to refer to the tables and judge for themselves as to the conclusions that had been drawn from the results. He then presented in abstract the two papers, "Variation in the Susceptibility of the Guinea-Pig to the Heart Tonic Group" and "Variation in the Susceptibility of Frogs to Ouabain.'

The papers were discussed by Messrs. Sayre, Hamilton, Vanderkleed and Eldred, and on motion were received and referred for publication.

The Nominating Committee presented the following list of nominees to be voted upon at the next session:

For Chairman — Frank R. Eldred, C. W. Johnson.
For Vice-Chairman — Dr. John M. Francis, Linwood A. Brown.
For Second Vice-Chairman — Wilbur L. Scoville, R. H. Needham.
For Secretary — F. P. Stroup, E. G. Eberle.

The Chair announced that the report of the committee would be acted upon at the last session on Thursday afternoon, and on motion the Section adjourned to meet at 10:00 A. M., Thursday, August 22.

SECOND SESSION — Thursday Morning, August 22, 1912.

Acting Chairman Eldred called the Section to order at 10:30 A. M. in the Ordinary on the top floor of the hotel. B. L. Murray, of New York, acted as Secretary, in the absence of F. P. Stroup, who acted in that capacity at the first session.

William Mittelbach, of Boonville, Missouri, was given permission to present a paper by a young man formerly in his service, but now of New York City, Mr. L. N. Sahm, — who, he said, was too modest to put himself forward. The paper was entitled "A Mercury Vapor Lamp for Bleaching."

Mr. Mittelbach exhibited eight samples of oil, four unbleached and four bleached, to illustrate the effect of this treatment, also some samples of colored paper, showing the bleaching of some of them from the sun's rays after several hours' exposure, and others showing the bleaching of like samples after the exposure to the lamp's rays for the same length of time.

There was no discussion of the paper, and it was referred to take the usual course.

L. E. Sayre presented a paper on "Crude Gelseminine and Its Possible Constituents."

There was no discussion of the paper, and it was ordered to take the usual course.

W. L. Scoville then read a paper entitled "On Drug Standards," which was discussed by Messrs. Chas. Caspari, Jr., F. T. Gordon, C. E. Caspari, H. R. Eldred and W. L. Scoville.

The paper was ordered to take the usual course.

Mr. Scoville next presented a paper on "Tincture of Cantharides and its Assay," which was discussed by F. R. Eldred and Chas. Caspari, Jr., after which the paper was ordered to take the usual course.

The Acting Chairman at this point read by title his paper on "A Convenient Method for the Estimation of Albumin in Urine," which was received and ordered to take the usual course.

H. C. Hamilton presented a paper on "The Pharmacological Assay of Pituitary Preparations,"* and one on the "Physiological Assay of Cannabis Sativa," which were received and referred to the Publication Committee.

A. W. Linton then presented a paper entitled "Reports on Some Commercial Samples of Drugs." This paper was referred to take the usual course.

In the absence of the writers, the following papers were read by title and referred for publication:

"An Outline of Micro Analytical Methods in Pure Food and Drug Laboratories," by Albert Schneider.

"A Note on the Keeping Quality of Volumetric Potassium Hydroxide Solution," by A. H. Clark.

"The Oleoresin of Pseudotsuga taxifolia," by O. A. Beath and Edward Kremers.

* See October Journal, p. 1117.

"The Ash Standard," by E. L. Patch.

"Purity of Chemicals and Drugs," by H. Englehardt.

"The Quality of Drugs," by W. A. Pearson.

"The Assay of U. S. P. Chemicals," by F. X. Moerk.

"A Few Drugs and Preparations submitted to the U. S. P. Quantitative Tests," by F. J. Wulling.

"The Production and Valuation of Belladonna in Minneapolis," by Manley H. Haynes and E. L. Newcomb.

"The Adulteration of Cascara Sagrada," by F. A. Miller.

"Tentative Standards for Some Biologically Standardized Drugs," by Chas. C. Haskell and Chas. R. Eckler.

"Ergot and Its Active Principles," by H. H. Dale.

"Guaiacol and Creosol Acetic Acids, and Some of Their Derivatives," by A. R. L. Dohme and H. Englehardt.

"The Electrolytic Determination of Some of the Zinc Salts of the Pharmacopoeia," by Joseph Rosin.

"Estimation of Iron in Reduced Iron," by O. E. Winters.

"Remarks on the Assay of Pepsin and Its Preparations," by L. Henry Bernegau and Leo H. Glickman.

"The Saponification of Fixed Oils Without Heat," by G. N. Watson.

"A Modification of the U. S. P. Assay Process for Opium Preparations," by S. L. Hilton.

Amendments to the By-Laws were proposed as follows:

Section V, Article 7. Change "a tentative" to "the".

Section V, Article 5. Add "The Secretary, at least two months in advance, shall write to each member of the Section, giving notice of the latest date upon which papers can be accepted for the program.

Section IX, Article 3. Omit "but in no instances shall a paper be presented by any one other than its author."

Section IX, Article 4. Add "but all such discussion shall be confined to the paper or subject under consideration at that time."

The proposed changes were discussed by Messrs. Becker, Gordon, Eldred and Havenhill.

The Section then adjourned to meet at 3 P. M. for election of officers and voting on proposed changes in By-laws.

THIRD SESSION — Thursday Afternoon, August 22, 1912.

The third session of the Section on Scientific Papers was called to order in the Ordinary, on the eighth floor of the Brown Palace Hotel, at 3:35 P. M., with Mr. Eldred as Acting Chairman, and Mr. Stroup as Acting Secretary.

Acting Secretary Stroup read the minutes of the two previous sessions and the Chair stated that if there were no corrections the minutes would stand approved as read, and it was so ordered.

On motion, by Albert Schneider, seconded by C. Caspari, Jr., the amendments

to the By-laws, proposed at the morning session, were adopted; so that the amended articles now read as follows:

Section V, Article 7. The Secretary shall arrange the program for the annual meeting and furnish the Editor of the JOURNAL of the Association the program for inclusion in the number just preceding the annual meeting.

Section V, Article 5. The Secretary shall keep a record of the proceedings of the Section, shall send to the members such notice as the business of the Section may require, shall transmit to the General Secretary the names of the officers and committees elected or appointed, and notify the General Secretary of any changes in the personnel of the officers or committees of the Section, and shall furnish the General Secretary a report of the sessions held at the annual meeting. The Secretary, at least two months in advance, shall write to each member of the Section, giving notice of the latest date upon which papers can be accepted for the program.

Section IX, Article 3. Fifteen minutes shall be allowed for the reading of the paper. If the paper is too lengthy to be read in detail within the space of time, it shall be presented in abstract.

Section IX, Article 4. Each speaker in the discussion of a paper shall be allowed five minutes, but all such discussion shall be confined to the paper or subject under consideration at that time.

The Chair called for the election of officers as the final order of business before the Section. Messrs. Scoville and Asher were appointed as tellers to count the vote.

The Secretary read the list, a vote by ballot was taken, and the tellers, after a tabulation of the vote, anounced that the following had been elected officers of the Section for the ensuing year:

For Chairman — Frank R. Eldred.
For Vice-Chairman — John M. Francis.
For Second Vice-Chairman — Wilbur L. Scoville.
For Secretary—Freeman P. Stroup.

The Chair said that there was no other business before the Section, and a motion to adjourn would be in order.

J. M. Francis said that before the Section adjourned, he wished to call attention to the fact that a very interesting and important joint session of the Committees on U. S. Pharmacopoeia and National Formulary was to follow this session immediately, and expressed the hope that all those present would remain for that meeting. The Chair accentuated this request, by reminding the members that the session immediately to follow was really a joint session of this Section with the two committees named, and this was all the more reason why the members should remain.

Thereupon, upon request of the Chair, the Secretary read the minutes of the session now closing, and the same were adopted as read.

Upon motion of Mr. Francis, the Section then adjourned.

# ADULTERATION OF CASCARA SAGRADA.

F. A. MILLER, B. S., INDIANAPOLIS, IND.

The quality of commercial cascara bark has been so uniformly high for the past few years that little has been said concerning adulterations and inferior grades. Destructive methods of collection have continued, however, and the centers of supply have shifted rapidly to new districts, facts which augment the possibilities of new adulterations and admixtures. Such possibilities exist in the case of most vegetable drugs and an uninterrupted period of uniformity and high quality should not result in a lack of vigilance on the part of crude drug inspectors. That a close inspection of all commercial packages is essential to successful manufacturing operations is evident when the conditions controlling the collection of these products are carefully considered. This is especially true in this country where a considerable portion of the crude drugs is gathered and prepared for the market by ignorant collectors. They are responsible not only for many adulterations but also for a great many of the variations which regularly appear, the effects of which are always evident in the finished product. Many variations in these products could be and in numerous cases have been traced to certain abnormalities in the crude materials.

Such conditions as these have existed in the case of cascara sagrada and the available information indicates that the markets have not always supplied a uniform drug of definite origin. A warning has recently become current that much of the commercial bark is now composed of *Rhamnus californica* Esch. This has led to an examination of samples purchased from various sources as well as a closer inspection of all shipments of the drug recently received. The method of inspection used in this instance must of necessity be one which will eliminate the adulterant with a minimum amount of time and labor. A review of the work that has been done on the identification of the bark of different species of cascara, reveals a difference of opinion on certain important characters. This difference is most evident in the statements referring to the relative width of the medullary rays in Rhamnus purshiana D. C., and Rhamnus californica Esch. Rusby[1] states that they commonly consist of two rows of cells in purshiana and three or more in californica. He accompanies this statement with drawings by Kraemer which show the rays from one to three cells wide in purshiana and from three to five in californica. Sayre[2] makes no statement as to the width of the rays but includes drawings of both species. These drawings indicate that the rays in purshiana are all two cells wide and in californica from two to four. Kraemer[3] gives the width as being from one to two cells in purshiana and from three to five in californica. It is to be noted that Kraemer furnished the drawings for Rusby[1] in which the width is shown to be from one to three cells in purshiana. Dohme and Engelhardt[4] classify the rays in purshiana as usually bicellular. Moeller[12] says they are composed of two or three rows of cells. In the examination of the commercial samples above mentioned (five from New York and three from San Francisco) as well as in numerous shipments of the drug, eighty-five per cent. of the microscopic inspections have shown the medullary rays to be from one to three cells wide. Rays from one to two and from one

to four cells wide have been noted in only nine per cent. of the examinations, while those from one to five and from one to six have not exceeded one per cent. It may be stated from this, that if the inspection of cascara bark for the isolation of Rhamnus californica Esch., can be based upon the relative width of the medullary rays, as stated by two authorities, the commercial conditions at present are not alarming.

The most recent report of adulterated cascara bark comes from abroad, in which Perrot[5] says that powdered cascara sagrada is sometimes adultered on

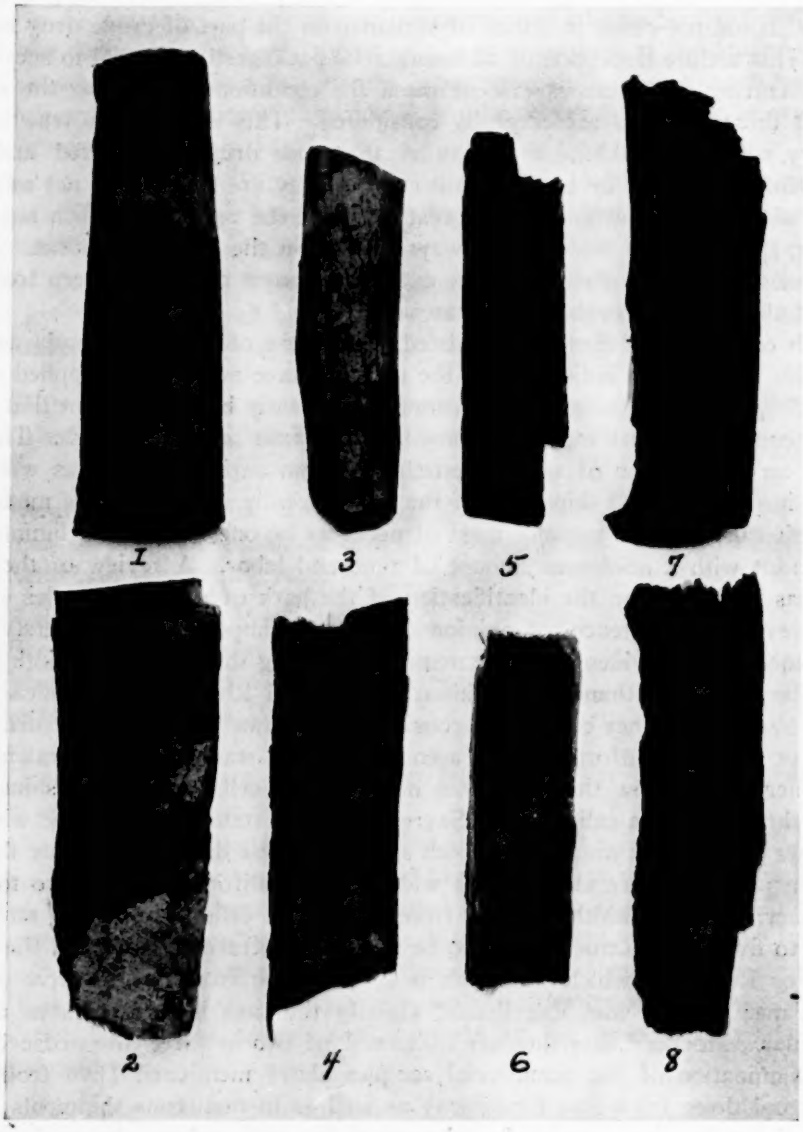


PLATE I.

**Fig. 1, 3, 5, and 7, Carcara Sagrada. Fig. 2, 4, 6, and 8, Carcara Substitute.**

the continent of Europe with powdered frangula. The small amount of the drug handled in this form in America, however, eliminates the possibilities of a similar occurence. Also its suggestion as an adulterant in the crude form by Beckett[6] does not seem well founded when the very distinct nature of the two barks is carefully considered. Its presence in cascara could readily be detected upon a basis of microscopic characters alone. Not so, however, with certain other forms that have appeared. Earlier reports indicate that the bark has varied considerably.

In 1888 Moss[7] called attention to a spurious cascara which though he was unable to identify he felt sure was Rhamnus purshiana D. C. collected out of season. The following year Squibb[8] discussed the general unsatisfactory condition of commercial cascara as it occurred during the summer of 1889. He accounts for this condition as being due to different methods of collecting and curing. Further complaint is not made until 1905 when Zeig[9] in a discussion of Cascara Bark—its habitat, collection, supply, etc., ascribed the difference in the appearance of the crude article to climatic influences and manner of drying. Other evidence is at hand which points to actual substitution and adulteration. Rusby,[10] 1890, claimed to have found this to be the case to the extent of car load lots. He attributes the cause to Rhamnus californica Esch. This hardly seems consistent with a statement made the previous year[11] which appeared as a criticism of the article by Moss. Referring to the inferior condition of cascara, he says that it is not so much a question of kind, inasmuch as Oregon and California barks are practically the same species and variety. He also states that he had been able to identify the bark Cornus nuttallii Audub, as a cascara substitute. Beckett[6] characterized the market conditions for a few years prior to 1889 and believed that three species were collected and marketed indiscriminately, i. e. Rhamnus californica Esch., Rhamnus purshiana D. C. and Rhamnus croceus Nutt. Concerning their comparative appearance he says they are almost identical. Another substitute is mentioned by this author which he classified as some species of alder and which resembled true cascara in appearance and taste.

From the foregoing it is evident that inferior cascara sagrada has frequently found its way to the open market. It is to be noted, however, that this inferior condition has been largely due to natural causes and has consisted more of variations in the genuine bark rather than in its adulteration by other forms. The influences which brought about these variations do not seem to have been active during the past few years or if so, their effects have not been mentioned. Critical examinations of numerous commercial shipments of the drug have served to confirm the former supposition. The entire contents of each bag of drug composing these shipments was inspected and found to reveal no greater variation than those which naturally occur in all drugs of vegetable origin. It has been learned that in the inspection of all such materials certain limits, to all natural variations, must be fixed in order to accommodate the constant and unavoidable fluctuations. During the past few years the maintenance of a standard with rather strict limits has been found possible, in the case of cascara bark, owing to the fact that the drug has been of such uniform character. Nevertheless, such a condition of uniformity never continues indefinitely. Interruptions and indeed actual reversals in the market situations may occur at the least expected moment.

An occurrence of this nature or any interruption of a commercial aspect, relative to the cascara supply would seem of sufficient importance to justify its announcement. It is, therefore, with this view in mind that the present discussion has been suggested.

The appearance of a new form of inferior bark has been detected during a routine inspection of a considerable lot of cascara sagrada. Though not having been extremely troublesome it presents possibilities which if taken advantage of by the collectors would make it a difficult form to control. The bark in ques-

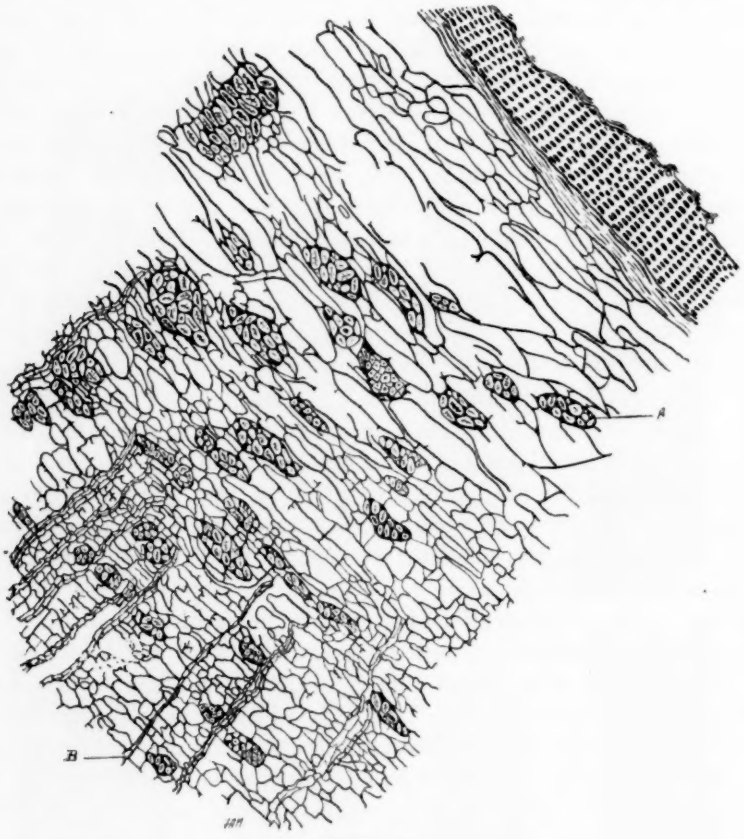


PLATE II.

**Transverse section, Cascara sagrada bark. A—Sclerotic cells. B—Medullary ray.**

tion resembles genuine cascara quite closely and especially is this true of the periderm. See fig. 1, 2, 3, & 4, plate I. Figures 1 and 2 are almost indistinguishable while in 3 and 4 is brought out the principle exterior difference viz., the more prominent longitudinally enlongated lenticles of the substitute (fig. 4) and the small inconspicuous transversely elongated ones of the cascara (fig. 3). The inner surface, however, and especially of the large pieces is the key to the ready detection of the adulerant. This difference being largely one of color is not indicated to advantage in the photograph. This color in the false bark is a light brown with frequent darker blotches. None of the yellow or lustrous brown of

the true bark is evident. The inner surface and fracture are also diagnostic, being in the spurious article, respectively striate and fibrous, while in the cascara they are smooth and short. The bark is practically odorless and the taste is only that of astringency with slight bitterness. The size and form of the adulterant cannot be regarded as important characters since they both exhibit about the same range of variations as the genuine bark. The adulterant is somewhat flatter, showing no tendency to form quills, and is slightly thicker.

Turning to the microscopic structure, this is found to disclose an even greater

PLATE III.

**Transvere section of bark, Cascara substitute. C—Bast fibers. D—Medullary ray.**

difference than the external features. (See plates II and III). These plates were outlined with a camera lucida attachment under a magnification of 87 diameters and the detail filled in under a magnification of 385 diam. It will be noted from these plates that the extreme width and conspicuous nature of the medullary rays, the difference in the bast fibers and the absence of sclerotic cells are the principle features by which the adulterant may be distinguished from the true bark. A consideration of all histological elements is unnecessary and of no practical value in this particular case. The cortical portions of the bark have not been included in Plate III on account of the absence of any important structures.

The outer and inner layers of this area are to all practical purposes the same in both cases and could be disregarded in routine inspections.

Although the form herein described has not been identified it is seen to possess none of the taxonomic characters of the genus Rhamnus and so can be eliminated from this group of plants. Of greater importance, however, than its identity is its isolation from the true bark. To accomplish this, all commercial packages of the crude drug should receive a careful botanical inspection. This inspection should not only cover all commercial packages but also every portion of these packages. This is best carried out during the process of manufacture when all packages must of necessity be broken and the drug handled in the loose form.

BOTANICAL DEPARTMENT, ELI LILLY & COMPANY, Indianapolis, Ind., July, 1912.

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## ERGOT AND ITS ACTIVE PRINCIPLES.

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Although ergot has long been established as one of the most valuable drugs at the disposal of the physician, its pharmacology remained, until the last few years, in a state of uncertainty and confusion.

Several causes contributed to this unsatisfactory result. In the first place the systematic position of ergot, as a fungus, rendered the chemical isolation of its active constituents a matter of peculiar difficulty. The search was further complicated by the fact that the most diverse opinions prevailed as to the type of physiological action which should be regarded as characteristic of a principle to which the therapeutic effect of ergot could be attributed. To some extent this difficulty still prevails. Not a little of the confusion, again, was due to the almost reckless manner in which successive observers bestowed names suggestive of chemical individuals on the crudest of extracts, or renamed substances isolated by their predecessors, through failure to compare their own results with those

already published. As instances of these tendencies may be cited, on the one hand, the name "Ergotin" still used especially in German literature, which was assigned in turn by Wiggers, Bonjean, Wenzell, Wernich, Yvon and others, in each case to a quite different kind of crude extract; and, on the other hand, the names picrosclerotine, and secalin, given by different observers to the one ergot alkaloid which, at that time, had been obtained in pure condition, and which Tanret, who first isolated it, had named "ergotinine."

This isolation of ergotinine by Tanret, in 1875, may be regarded as the first step of real importance towards the recognition of the specific active principle of the drug. It is remarkable, indeed, how nearly the problem was solved at this comparatively early date in the history of its investigation. Tanret's ergotinine has been found, as already mentioned, by several subsequent observers, and its formula has now been definitely settled by the analyses made by Barger and Carr, whose correction of that originally given has been confirmed by Tanret himself. In one respect Tanret's results have not been substantiated by recent work. Finding that ergot yielded, in addition to the easily crystallizing alkaloid, a further quantity of alkaloid giving practically identical chemical reactions, but refractory to crystallization, Tanret regarded this latter as an amorphous form of the same alkaloid.

In this assumption he was undoubtedly in error, the amorphous alkaloid being, indeed, closely related to, and easily formed from the crystalline, but not chemically identical with it. The failure to recognize this difference, though a small point in itself, had a far-reaching effect on the pharmacological history of the drug. On the basis of clinical results, obtained either with the amorphous alkaloid, or with acid solutions of the crystalline alkaloid, in which the amorphous is rapidly formed, Tanret concluded that he had isolated the active alkaloid of ergot. When, however, his alkaloid was subjected to pharmacological experiment by Kobert, the crystalline ergotinine as being that of which the purity could be guaranteed, was naturally taken, and injected in fresh solution. Kobert rightly concluded that it has practically no activity; and since, according to Tanret, the amorphous alkaloid was chemically identical with it, ergotinine was dismissed as of no pharmacological interest, though it still retained some vogue in practical therapeutics. As a result the chemical investigation of the drug was again given over to the preparation and testing of crude resinous products, though the work of Kobert in particular did something towards determining the manner which the specific toxic effects could be recognized. Kobert claimed to have separated from ergot three principles, which, though not chemically pure, had each a separate and distinct physiological action. One of these, "ergotinic acid," was admittedly of no therapeutic interest, having an action which Kobert regarded as related to that of saponins, and need not be further considered. A second, "cornutin," a resinous alkaloid preparation, was found to produce convulsions in frogs and mammals, and was regarded by Kobert as responsible for the convulsant type of ergotism, prevalent in most of the epidemics of ergot-poisoning in northern and eastern Europe. The nature of the substance producing this convulsant action, in Kobert's experiments, is one of the points in the pharmacology of ergot which still remains obscure. According to the method of preparation, "cornutin" must have contained the alkaloid now known as "ergotoxine;" but

this latter does not possess the peculiar action in question. Subsequent observers have failed to obtain from ergot an alkaloid possessing this action, and it is admitted by Kobert and his pupils that their own recent attempts to obtain it have not succeeded. The preparations commercially obtainable under the name "cornutin" consist of more or less impure and resinfied mixtures of the known ergot alkaloids, and have not the marked convulsant action. Whether Kobert was dealing with a peculiar decomposition product or with an alkaloid occurring exceptionally in the batch of ergot with which he worked will probably never be settled; in any case "cornutin" cannot be regarded as a chemical entity or a normal ergot constituent. Kobert's third active principle was an acidic resin, named "sphacelinic acid." This was found to produce the gangrene which formed the predominant feature in the epidemics of ergotism in France, as well as a well-marked gastro-intestinal inflammation. Experimentally the symptoms were seen most typically in fowls. Jacobj's experiments were directed to a closer chemical characterization of the active principle of Kobert's sphacelinic acid. By ethereal extraction he obtained from ergot a yellow substance, producing gangrene in fowls, to which he gave the name "chrysotoxin." By extraction with organic acids he separated from this an alkaloidal fraction consisting of a crystalline inert alkaloid, undoubtedly identical with Tanret's "ergotinine," but called "secalin" by Jacobj, and an amorphous substance, of high physiological activity, which he called "sphacelotoxin." This latter, for reasons which now appear to be inadequate, Jacobj described as a non-nitrogenous resin, in spite of the fact that his analyses of "secalintoxin" (i. e. "secalin"+"sphacelotoxin") and of secalin (=ergotinine) show identical percentages of nitrogen.

With regard to the therapeutic bearing of these investigations, Jacobj regarded sphacelotoxin as the bearer of the therapeutic as well as the toxic properties of ergot. Kobert, at one stage of his investigation, attributed the therapeutic effect on uterine activity to "sphacelinic acid," at another to "cornutin." Probably the main effect of these researches on the course of ergot investigations was the establishment of the cock's-comb test as an empirical measure of the activity of the drug. From the chemical point of view the subject was left, in 1897, in a far worse position than that to which Tanret had brought it in 1875, and the official pharmacological teaching concerning ergot became once more a matter of complicated terminology for ill-defined substances.

This was the state of affairs when, in 1904, an investigation was begun at the Wellcome Physiological Research Laboratories. Those responsible for this soon came to the conclusion that it would be fruitless, in the first instance, to search for a principle endowed with all the physiological actions which, at one time or another, had been attributed to ergot, and associated, on inadequate evidence, with its therapeutic value. The first step, rather, must be to take some characteristic action, which could be regarded as probably the effect of one active constituent, and endeavor to ascertain the nature of that constituent. It would then be possible, if a chemically pure principle were obtainable, to investigate its relation to other types of action, and to search further for other principles, if it became clear that more than one was involved. It seemed natural, at that stage in the history of the drug, to start by examining and further analyzing the action of preparations made according to the methods of Kobert and Jacobj. The re-

sults of this preliminary investigation are embodied in the first paper by H. H. Dale, in which a highly characteristic effect on the function of the true sympathetic system is described. All the preparations tested had a potent stimulating action on plain muscle, succeeded by a paralysis of motor sympathetic effects, while the inhibitor actions of the same system were left unaffected. The most readily observed instance of this action was the fall of blood-pressure resulting from injection of the suprarenal active principle, in place of its normal, typical, pressor action. It may be noted, in passing, that this so-called "vasomotor reversal" test has been the subject of some criticism by those who have attempted to use it as an indication of ergot-activity in general. It is desirable to make it clear that its originators never claimed for it any value except as a test for a particular active principle, and that it is not surprising that others have failed to find it applicable to extracts owing their activity chiefly to other substances. The search for the substance producing this action was conducted by G. Barger of the Wellcome Physiological Research Laboratories, working in conjunction with F. H. Carr of the Wellcome Chemical Works, Dartford, their results being constantly controlled by Dale's physiological experiments. They were soon able to identify the active substance as an alkaloid, closely resembling Tanret's ergotinine in many of its chemical properties, but differing from it in solubility and in the fact that it could not be crystallized as a free base. They were able to obtain it pure however, in the form of its salts, many of which crystallize readily. In this respect, again, it differs from ergotinine, the salts of which have resisted all attempts to crystallize them, though the base itself crystallizes well. A physiological examination of the pure salts of the new alkaloid showed that it not only possessed the characteristic type of action which afforded the clue to its isolation, but produced typical gangrene of the cock's-comb and the other toxic actions ascribed by Kobert to "sphacelinic acid" and by Jacobj to "sphacelotoxin." To this active amorphous alkaloid, with crystalline salts, the name "ergotoxine" was given by Barger and Carr.

By one of the not infrequent coincidences of scientific work F. Kraft, who had also for some years been working at the chemistry of ergot, arrived almost simultaneously at the conclusion that ergot, in addition to Tanret's crystalline ergotinine, contained a second, amorphous alkaloid. The results of his investigation, which also threw much light on the chemistry of some of the inactive constituents of the drug, were published only one month after Barger and Carr's preliminary note, which had escaped his notice. His separation of the two alkaloids was based on the different solubilities of their sulphates. Since he obtained these only in an amorphous form, there was no guarantee that the separation was complete, and he made no analyses. At the same time, on the basis of observations as to the methods by which each alkaloid could be converted into the other, he put forward the suggestion that the amorphous alkaloid was a hydrate of the crystalline ergotinine, and, being unaware that it had been named just previously by Barger and Carr, who provisionally named it "hydro-ergotinine." Having crystalline salts of their alkaloid fit for analysis, Barger and Carr were then able to confirm Kraft's suggestion as to the relation between the alkaloids, and Kraft himself subsequently obtained crystalline salts by their method, and further confirmed the identity of his alkaloid with theirs and its relation to ergotinine. The

chemistry of the ergot alkaloids being thus placed on a satisfactory footing by the concurrent though completely independent work of two laboratories, it became of importance to examine the relation of these alkaloids to previously described "active principles." As the result of a lengthy investigation, Barger and Dale came to the conclusion that the "amorphous ergotinine" of Tanret consisted largely of the alkaloid now known as "ergotoxine;" that the crystalline ergotinine was, in reality, inert, and only appeared to possess activity on account of the readiness with which, in watery acid solution, it became converted into its intensely active hydrate "ergotoxine;" that preparations such as "sphacelinic acid," "chrysotoxin," "sphacelotoxin," owed all their activity to the presence of ergotoxine in greater or less proportions. It should be noted that, since ergotoxine has weak acid as well as weak basic properties, and since its salts, moreover, form colloidal solutions in water, its presence as an activity-conferring constituent in acidic resins is easily explained. Barger and Dale published a table of synonyms, indicating the importance of ergotoxine as the active constituent of the various principles described up to that date. At the same time they recognized and, indeed, explicitly stated, that certain features of the action of some of the most widely used extracts of ergot could not be accounted for by the presence of ergotoxine. The fluid extract of the U. S. P., being an acid alcoholic extract, contains, indeed, a large proportion of the ergotoxine of the ergot from which it is made, and doubtless owes to this a great part of its therapeutic value. Edmunds and Hale recently arrived at the conclusion that the effect of this extract on the uterus runs parallel to its activity as determined by the cock's-comb test, which they rightly regard as a measure of its ergotoxine value. On the other hand, such preparations as the "Extractum Ergotae Liquidum" of the British Pharmacopoeia, which has a great vogue among practitioners in Great Britain, usually contains mere traces of ergotoxine. Yet this extract exhibits two definite types of physiological action, which have been recommended by different authorities as measures of its therapeutic value—it has a pressor action, of the adrenine type, and it causes pronounced contraction of the isolated uterine muscle. Barger and Dale proceeded to investigate the nature of the substances responsible for these types of activity. Shortly before this, Vahlen had announced the discovery in ergot of an active principle with no toxic properties, but possessing a specific stimulating action on the normal, coordinated contractions of the pregnant uterus. To this principle he gave the name "clavin," and was soon able to cite clinical evidence in favor of its activity. Barger and Dale examined this preparation and found it to be a mixture of aminoacids and quite devoid of activity. Their statement as to its chemical nature was confirmed by Van Slyke, who separated it into leucin, isoleucin, and valin, and determined the proportion of each which was present. Several other observers (Cushny, Kehrer, Cronyn and Henderson) had also found it inactive. Vahlen's results are, therefore, of interest only as evidence of the great difficulty in obtaining and interpreting clinical evidence as to the effect of drugs on uterine activity. It became necessary to look elsewhere for the active constituents, other than ergotoxin, of which the existence was evident. For a long time no success was obtained, for the principles in question could not be removed from ergot extracts by any of the methods ordinarily employed for the isolation of alkaloids. It seemed possible, however,

that ergot, being a fungus, might resemble the bacteria rather than the higher plants in its metabolic processes, and that an investigation of physiologically active substances produced by the putrefaction of proteins might furnish a clue to the nature of the other active ergot constituents, and suggest methods for their isolation. A resemblance between ergot constituents and the products of putrefaction was, indeed, suggested by Buchheim as long ago as 1874. But the significance of this suggestion, as of Tanret's work on the alkaloids, which followed a year later, had been obscured by the investigations of the intermediate period. Barger and Walpole accordingly studied the pressor constituents which occur in putrid muscle extracts, as Abelous and his pupils had previously shown. They found them to belong to the series of amines, formed from amino-acids by splitting of carbon dioxide, the most abundant being isoamylamine (from leucine), the most active p. hydroxyphenylethylamine (from tyrosine). Dale and Dixon showed that the action of these bases is of the same general type as that of the supra-renal active principle. Meanwhile, the probability that the other active constituents of ergot were to be sought in this direction was increased by the work of Rielander who extracted from ergot the well-known but almost inactive bases putrescine and cadaverine. Applying the experience gained with putrid meat, Barger was able to prove the presence of the pressor amines in the ordinary liquid extract of ergot, and to show, in conjunction with Dale, that practically the whole of the adrenine-like pressor action possessed by such extracts, and widely used in England at the time as a basis for their physiological standardization, was due to the presence of p. hydroxyphenylethylamine. This substance has been produced artifically by a number of synthetic methods and is now obtainable commercially under the name "Tyramine."

The investigation was not yet complete, for "Tyramine" was found to resemble adrenine not merely in its pressor action, but in practically all its effects, reproducing very closely the effects of stimulating nerves of the true sympathetic system. Among such, a highly characteristic action is the inhibition of the tone and rhythm of the uterus of the virgin cat, and this is typically reproduced by "Tyramine." On the other hand, it has been shown by Kehrer that isolated uterine muscle from any animal responds by tonic contraction to small doses of ergot extracts, and that the uterus of the non-pregnant cat exhibits this effect particularly well. Though ergotoxine has a powerful tonic effect on the cat's uterus *in situ*, it has a comparatively weak action on the isolated organ; it was clear, therefore, that some other principle must be present of sufficient power in this direction to overcome the inhibitor effect of tyramine. In searching for this, Berger and Dale made use of the methods elaborated by Kutscher and his school for the separation of bases from extracts of meat or putrefation mixtures.

They chose for the investigation the ergot extract which produced Kehrer's effect most intensely, viz. the "Ergotinum Dialysatum" of Wernich. In the end they succeeded in isolating a small quantity of the crystalline picrate of a base which, while it resembled histidine in its properties of solubility and precipitation by reagents, and gave the diazo reaction of Pauly with great intensity, differed from histidine in producing Kehrer's effect in extreme dilutions, whereas histidine is quite inert in this direction. It was a natural supposition that the

base might bear the same relation to histidine as "tyramine" to "tyrosine." By another of the curious coincidencies which have occurred in the course of this investigation, the same base had been obtained from ergot by Kutscher simultaneously and independently. At the same time Ackermann, by putrefaction of a broth containing histidine, had obtained a supply of the base which results when histidine loses $CO_2$. Barger and Dale found the histidine derivative identical with their ergot base, while Ackermann and Kutscher concluded that the two were similar but not identical. It has since been shown that the apparent difference in physiological action, on which Ackermann and Kutscher based their conclusion, was due to an unsuspected variation of the conditions of experiment, and it may be regarded as established that the principle in ergot mainy responsible for its intense tonic action on isolated uterine muscle is b. Iminazolylethylamine (i. e. histidine minus $CO_2$). This is now prepared synthetically, and obtainable in commerce as "Ergamine." Its action has been investigated and described by Dale and Laidlaw, who have drawn attention to the interesting similarity between the effects which it produces on intravenous injection, and those which follow the injection of various tissue extracts and form the main feature in the clinical picture of the "anaphylactic shock." At the same time it has been demonstrated that the base can be given hypodermically in small doses without producing bad symptoms, but with marked effect on the uterus.

Engeland and Kutscher subsequently isolated from ergot agmatine, the analogous amine from arginine, and attributed to it a similar action. According to Dale and Laidlaw the effect of agmatine is very weak, and it cannot contribute in any significant degree to the action of ergot.

It is not suggested, of course, that all the constituents possessing a physiological action of any kind, which occur in any sample of ergot or its extracts, have been isolated and identified. On the contrary, it has been obvious, from the latter portion especially of Barger and Dale's work on this subject, that the casual occurrence of unusual bases is only to be expected in extracts of a fungus which shows many similarities in its action to certain putrefactive bacteria. It is even uncertain, in any particular case, how much of the active amine constituent must be attributed to the metabolism of the ergot itself, how much to superadded putrefactive changes occurring either before or during extraction. What is quite certain is that good, dry ergot contains not merely ergotoxine, but also the bases in question, though the proportion of these latter may well be increased in the preparation of such a product as the Liquid Extract of the B. P., and still more so in the dialysed preparations. It may further be claimed that the substance responsible for each of the various physiological actions, hitherto suggested as a basis of standardization, has been isolated and identified. The effect on the cock's-comb was given practical application for standardization by Houghton, who gave details by observance of which a quantitative indication was obtainable. This has been recently verified by Edmunds and Hale. This action, like the "vasometor reversal" described by Dale, is due to ergotoxine, and while the practice of different observers may lead them to prefer one or another of these methods, they are testing, in either case, for ergotoxine only. When the measurement of pressor effect, in dog or cat, as recommended by Wood and by Cronyn and Henderson in America, and by Dixon, Goodall and others in England, is adopted

as an index of activity, the measurement appears to be one of ergotoxine +"tyramine" in the case of the Liquid Extract of the British Pharmacopoeia, Kehrer's method, again, if a cat's uterus be used, is apparently a measurement of "ergamine" content only; on the other hand, the isolated guinea-pig's uterus is exquisitely sensitive to ergotoxine as well as to ergamine." It will doubtless be possible by a combination of methods to work out a rational system of ergot standardization when it is once decided which of the principles are therapeutically desirable and in what relative proportions they should occur. What is needed above all for the settlement of this aspect of the ergot-problem is an accumulation of accurate clinical observation with the pure active principles. Meanwhile it may be said that results hitherto available appear to point to the superiority of a preparation containing the three chief active principles in appropriate proportions, as compared with any one of them separately. It should be further remembered that ergotoxine is the only one of them for which ergot is needed. The others are much more easily obtained by synthesis in the laboratory, and it may be assumed that the ideal preparation is one containing a definite quantity of pure ergotoxine from ergot, with the amines added in due amount. A preparation containing 1 mgm. of ergotoxine to 5 mgms. of "Tyramine" and 0.05 mgms. of "Ergamine" has given highly satisfactory results in practice. But pending more decisive clinical information it may be suggested that no one method of standardization can yet claim exclusive value or unquestioned superiority, whatever be its accuracy in determining the proportion of one or more of the active principles.

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## THE A. PH. A. WOMEN'S SECTION.

At one time in the early history of the A. Ph. A., soon after the dawn of the organization, and long before the day of women's clubs, the members gravely discussed the question of women at annual meetings. It was at the time when Procter and Parrish watched the destinies of the Association. It was finally decided to make the conventions family outings and the practice has grown until now the women equal the men in number. The entertainment program is made up with a view of letting the men attend all the sessions of the Association, but giving the women attention while the men are at work. Somehow many of the members cannot withstand the temptation to leave business and scientific sessions behind and join the women. Perhaps more men would go if official positions did not prevent. It is now proposed to form an A. Ph. A. W. S. and keep the women busy while the men are at work. The council has given its sanction and President Day will name the temporary officers and committees. This organization may result in a program of entertainment so arranged that all will take part at the same time. Some have advocated a post convention entertainment with the president's reception Monday night as the only deflection during the week of meetings.—*Meyer Bros. Druggist.*

# Section on Pharmacopoeias and Formularies

Papers Presented at the Sixtieth Annual Convention

## MINUTES OF THE JOINT SESSION OF THE COMMITTEES ON THE U. S. P. AND NATIONAL FORMULARY.*

A joint session of the committees on U. S. Pharmacopoeia and National Formulary, in conjunction with the Scientific section, held as a tentative section-meeting, under authorization of the Council, and presided over by L. D. Havenhill, of Lawrence, Kansas, was held immediately succeeding the third session of the Scientific Section on Thursday afternoon, August 22, 1912. E. Fullerton Cook, of Philadelphia, acted as Secretary.

The Chair made some brief introductory remarks explaining the origin of the movement which had resulted in this joint meeting.

The Chair announced that the first order of business would be the reading of reports of the committees which would logically report to a section of this kind. The first thing on the program, was the report from the Chairman of the U. S. Committee of Revision of the Pharmacopoeia, Prof. J. P. Remington, but as he had not yet arrived, the second report on the program would be taken up, namely, that of the Committee on National Formulary, which would be presented by Prof. W. L. Scoville, in the absence of the Chairman of the committee, Prof. C. Lewis Diehl.

The Chair stated that inasmuch as the report embodied a recommendation, and the next paper on the program, "Points of Contact Between the U. S. P. and N. F." bore directly on that recommendation, he thought it would be well to listen to that paper before taking action, and he would call on the author, E. Fullerton Cook, of Philadelphia, to present it.

The Chair said the papers just read before the Section were open for discussion.

C. E. Vanderkleed moved that the report be accepted, and that the recommendation contained therein be approved by the joint meeting. He added that of course it was understood that this meeting had absolutely no control over the matter, and could only recommend.

H. V. Arny, in seconding this motion, called attention to the fact that Prof. Diehl, Chairman of the committee, had made two recommendations, and he supposed Mr. Vanderkleed's motion referred to the one which recommended deferring publication of the National Formulary until after the Pharmacopoeia was published. Mr. Vanderkleed replied in the affirmative, and said this was given preference in the report.

Thereupon, the motion to receive and adopt was put to a vote and carried.

* Now known as the Section on Pharmacopœias and Formularies. Papers and Reports presented at this session will be printed separately.

The Chair asked if there were any remarks upon Mr. Cook's paper. None were offered, and the paper was referred to take the usual course.

The Chair next called for report of the Committee on Unofficial Standards, as following this line and coming naturally in this connection.

Prof. Arny suggested that Prof. Remington was now in the room, and it might be proper here to take up the first order of business, that of report of the Committee on U. S. P. Revision.

The Chair said it seemed to him desirable, as long as the session had the work of the National Formulary Committee under advisement, to finish up that subject and then take up the remainder of the work. However, if there was any objection to that, the report of Prof. Remington might be presented at this time.

Prof. Remington said he was "always one of the innocents," and wanted to know what the authority was for this so-called Section.

The chair replied that this matter had been explained before Prof. Remington came into the room. This Session, he said, was the result of a communication addressed to the Council by Ex-President Oscar Oldberg, of Chicago, requesting that something be done towards creating a Section of this Association which would have to do with matters relating to the Committee on U. S. P. of the American Pharmaceutical Association. This session had been authorized by the Council as a tentative proposition, for the express purpose of ascertaining whether it would be deemed advisable to organize such a permanent Section.

Prof. Remington expressed the conviction that this session could not be properly or legally considered as that of a Section of the Association. It might or might not be desirable to have another Section; that was a matter for thoughtful consideration. As he personally knew, four sessions of as many different branches of the Association were going on at this very time. He himself had just been called upon to appear before two or three meetings at the same time. The practical question was, Where were the members going to find the time to attend a multiplicity of Section sessions?

In answer to a question by Dr. J. M. Francis, as to whether this was not intended to be a joint session of the Committees on U. S. P. and N. F. with the Scientific Section, instead of a meeting of the two committees named as a separate Section, Mr. Eldred stated that he had been informed by the General Secretary that a joint session of the two committees with the Scientific Section had been authorized, to determine the advisability of creating a Section, and the two chairmen had been advised to get together and hold such a joint session this afternoon.

Prof. Remington said if the session was to be treated as a part of the work of the Scientific Section—a sort of symposium of the Pharmacopoeia—it was all right; but he doubted the propriety of creating a separate Section.

The Chair concluded the discussion by stating that the Council, at its sixth session last night, had authorized the chairmen of the A. Ph. A. Committee on U. S. Pharmacopoeia and National Formulary to hold a special session—to determine whether it would be advisable to create the proposed Section on the U. S. P. and N. F. The specific purpose in view was to consider the question of forming a new Section to deal specifically with these matters, thus relieving the Section on Scientific Papers of their discussion.

The Chair stated that, without objection, the session would now proceed to finish up the subject of National Formulary work, before taking up the question of the Pharmacopoeia, and called on Mr. Cook to present the report of the Committee on Unofficial Standards, of which Mr. Geo. M. Beringer was chairman.

Mr. Cook said that he would not read the entire report, as it was very voluminous, but would give the substance of its leading features. The report, he said, was followed by a monograph on each of the forty-five substances treated of.

Dr. Francis suggested that Mr. Cook merely read the titles of the articles upon which the report was rendered, and the Chair stated that as the titles were being read, if anyone present had any particular interest in the monograph on a given subject, he could ask to have it read.

Philip Asher moved to receive the report as read, and this motion was seconded by Mr. Scoville.

Dr. J. M. Francis moved to amend by adding that the recommendation of the Chairman of this particular committee be referred to the Council for action, as it was absolutely necessary for the Council to act before the adjournment of the Association. This recommendation, he said, involved the appropriation of a certain amount of money, and also appointment to vacancies on this committee.

Prof. Asher indicated his acceptance of this amendment.

The Chair thereupon put the vote that the report be received and referred to the Council for its action, and the motion prevailed.

The Chair said this disposed of the subject matter in hand—the report of the Committee on National Formulary and matters related thereto. Referring to Mr. Cook's paper, he said there had been appointed a harmonizing committee on U. S. P. and N. F., which he had no doubt would remove dissension as far as possible.

The Chair then stated that this brought the work of the session up to the point where U. S. Pharmacopoeia matters could be taken up, and in the absence of Mr. Remington from the room at the moment he would ask Mr. Eldred to take the chair, while he read his own report as Chairman of the A. Ph. A. committee.

Prof. Scoville moved to receive the report just read and refer it for publication, and this motion was seconded by Dr. Francis.

Prof. Remington, who had returned to the room, said he was sorry that Prof. Havenhill did not make this report to the Pharmacopoeial Convention, as that was the place for it. The work of revision was now perhaps two-thirds completed, and he asked if it was proposed that the Committee of Revision should be abolished and another Convention assembled, to carry out the radical changes he advocated. The American Pharmaceutical Association did not make the United States Pharmacopoeia. It was a delegate convention that did that, and its members represented various bodies throughout the country. There was no sound reason, he thought, for most of the criticism offered, and the proposition to publish the Pharmacopoeia in three volumes was an unheard-of thing in the history of Pharmacopoeias. The doctors would certainly object to a book giving the properties of various remedies—a book on therapeutics, in short. The Committe of Revision had begun its work two years ago, on the lines laid down by the Pharmacopoeial Convention, at which the doctors of the country were fully represented. He could see no justification in this proposition to bring about a totally

new plan of procedure at this time—a plan which was perfectly impossible of accomplishment, and one which could serve no good purpose. If it was intended merely to receive the report and publish it as an individual expression of view, he had no objection; but he strongly opposed the idea that it should carry with it any endorsement by the American Pharmaceutical Association as touching the U. S. Pharmacopoeia.

Mr. Scoville said he thought Mr. Remington was speaking under a misapprehension. This was a report of the Committee of the A. Ph. A. on U. S. Pharmacopoeia, of which Mr. Havenhill was chairman—a report to the Association. His own motion was simply to receive the report and refer it for publication.

Mr. Francis thought that, while it was entirely proper to receive the report and refer it in the usual way to the Publication Committee, this action did not commit the Society to the recommendations made by the author.

Mr. Havenhill disclaimed any purpose of criticizing the present Pharmacopoeial Revision Committee. He realized that the Convention had met and decided on the method of procedure for the present revision. He believed, however, the movement should be begun along the lines pointed out in his paper.

Mr. Vanderkleed asked if all the members of the committee had signed this report. Mr. Havenhill replied that it was entitled the report of the Chairman, and not the report of the Committee.

Mr. Vanderkleed, said that, as it appeared that this was in reality a paper by the Chairman of the Committee, and not really a report of the Committee on U. S. P. to the Association, it was perfectly proper to receive it just as any other paper was received. It was not signed by the committee, and was not a report from the committee.

Mr. Arny said he was glad Mr. Vanderkleed had made this point clear. The report of the Committee on National Formulary, he said, had been signed by Chairman Diehl only, but the report had been gone over by the members of the committee and approved. The paper under discussion should be considered simply as a paper contributed by the Chairman of the Committee on U. S. P.

After some further discussion of the subject, participated in by Messrs. Scoville, Gordon, Eldred, Francis and Remington, a suggestion by Mr. Francis, approved by Mr. Remington, that the author insert a statement by way of introduction to his paper that, in the absence of a report from the committee as a whole, the Chairman offered this as embodying his individual views on this subject, was accepted by Mr. Havenhill, who promised to correct the paper accordingly.

Thereupon, Acting-Chairman Eldred put the question on the motion to receive this paper and refer it to the Publication Committee, with the modification suggested by Mr. Francis, and it was carried.

Chairman Havenhill resumed the chair, and called on Mr. Remington to make report as Chairman of the Committee of Revision of the U. S. P. He expressed regret that this session could not have been opened by the presentation of this report by Mr. Remington, because of his absence from the hall at the time. (See October, 1912, Journal, p. 1124.)

Mr. Remington, discussing his report, said he thought that the most far-reaching question the Committee on Revision had to deal with was the question of

patents. The doctors in the Convention did not understand why such a thing as "aspirin," for instance, should not be in the Pharmacopoeia. The doctor didn't know anything about the conditions—why such a thing as he used every day was not in the Pharmacopoeia; and he wanted to throw out the whole book because the thing he used every day was not in there. But how was that to be helped? Where a patent had expired on a synthetic or controlled product, or would expire within the year, there was no trouble about putting it in the Pharmacopoeia. Indeed, the manufacturer who knew that his patent would soon run out was willing enough that his product should be put in. But it would be impracticable to have an official test for such a thing as aspirin, for the manufacturers would not allow the use of the name; and if the doctor prescribed it under some other name, the manufacturer would at once say that there was only one true and genuine aspirin, which was yellow in color, or pink, or some other color—something not found in the Pharmacopoeia. And in doing that he would claim that he was simply defending his rights.

Mr. Becker said he would like to see the Pharmacopoeia give the solubility in oil or oil base of many chemicals used. A good example was biniodide of mercury in oil. The Pharmacopoeia gave no information as to that.

Mr. Remington said that the committee having that subject in charge fully recognized the importance of this. The doctor, however, did not care to know whether it was 783.5 or 780 or 800, as long as he could get some idea in making his preparation. He said a table would be prepared by Atherton Seidel, which would go into the back of the book and contain the exact solubilities, as near as it was possible to determine them from the best available sources. The idea was to give information suitable for the doctor.

Mr. Asher moved that the report be received, and that this Section express its appreciation to Mr. Remington for the able manner in which he had presented his report.

This motion was seconded by Messrs. Scoville and Johnson and carried unanimously.

The Chair stated that the next thing in order was a paper contributed by J. U. Lloyd. It would be remembered, the Chairman stated, that one of the functions of the Committee on U. S. P. was to collect statistics regarding the frequency of use of official and non-official drugs by the medical profession in various parts of the United States. Prof. Lloyd had gone into this question on his own responsibility, with a remarkable amount of energy, as was his custom in investigating any subject. (See elsewhere in this issue for Prof. Lloyd's paper.) He asked Secretary Cook to give a summary of the paper.

Prof. Remington moved to receive the paper and refer to the Publication Committee, which motion was seconded by Mr. Vanderkleed and carried.

Prof. Remington here stated that there was so much inquiry at the present time about the progress of the Pharmacopoeia, that he would like to have the recommendation of this session that permission be given to send the paper he had read to the pharmaceutical journals throughout the country. He did not wish to forestall any thing that should properly appear in the Journal of the Association, but it would be some time, he supposed, before that came out, and if the members here believed that the public interest would be served by giving out this in-

formation, he did not suppose it would do any great harm for an exception to be made in this case.

Mr. Asher, in reply to Mr. Remington, stated that this question had come up in the Council a few days ago, about the giving of the President's Address and certain reports to the public press, and the publication of papers was left entirely to the Journal. So the only recommendation that this session could make would be to the Council.

Thereupon, Mr. Arny moved that this session request the Council of the Association to permit the release of this report of the Committee on Revision of the Pharmacopoeia to the journals other than the Journal of the American Pharmaceutical Association. This motion was seconded by C. E. Mollet and carried.

R. H. Needham, of Texas, presented his paper on "Some Practical Suggestions for Pharmacopoeial Revision."

The paper was discussed by Messrs. Remington, Asher, Arny, Clark and Mollet, after which it was on motion, received and referred to the Publication Committee.

The Chair stated that there were three or four papers on the program. As it was now 20 minutes after 6 o'clock, he would be glad to have the ideas of the members as to whether an adjourned session was desirable.

Mr. Needham thought favorably of the suggestion of having an adjourned session, but Mr. Sayre and Mr. Frazier suggested that their papers might be read by title, to save time.

Mr. Remington said he thought Mr. Sayre's paper should be read, because it was vital to this session. Mr. Sayre then presented his paper entitled, "A Plea for another Section in the A. Ph. A." (See October Journal, p. 1123.)

Mr. Mollet moved that this paper be received to take the usual course, but Mr. Clark suggested that as any proposition to create a new Section must be referred to the Council of the Association, this paper should be so referred.

Mr. Vanderkleed thought the only objection to carrying out most of the suggestions set forth in this paper was the fact that the Association did not have a meeting which lasted two weeks, instead of one. The work of the Pharmacopoeia and National Formulary was exceedingly important, but he thought it might be possible to arrange a symposium on the subject in the Section on Scientific Papers. He saw no necessity of making a separate Section.

Mr. Sayre said he was aware of the difficulties that existed. He felt, however, that a paper of this kind should be before the Association for the things he wanted to convey; and he would be glad to have it referred to the Council. In his report last year on Drug Reform, the one point he made was that the American Pharmaceutical Association should be made a clearing-house for drug chemists, and he believed here was the opportunity.

Mr. Mollet thereupon amended his motion to the effect that the paper be accepted and referred to the Council.

Mr. Cook said he wished to call attention to the fact that the purpose that Mr. Oldberg had in mind in suggesting the formation of a new Section was to relieve the Scientific Section, by gathering together each year all the papers on the subject of U. S. P. and N. F.

Mr. F. T. Gordon said that one idea in the creation of the new Section was

that the Scientific Section now had as much work as it could handle—in fact, more; and if a new Section were created, it would have a certain *prestige*. The members would contribute papers to the Section, and if only a few members were present, still, it would be a Section of the American Pharmaceutical Association, and the papers presented before it would be printed in the Proceedings and the Journal of the Association.

Mr. Remington said there was much to be said on both sides of the question, but he thought with the Chairman it was the duty of this meeting to express itself on the proposition as to whether this should be a part of the work of the Section on Scientific Papers, or whether an independent Section should be created. Personally, he preferred that it should be a Section—particularly since he had noted the interest shown by the members, heard the papers read and seen the results of this session. Papers on the Pharmacopoeia had been submitted of a character which had never been seen before. He thought it time that everyone should be heard on matters so vital as the Pharmacopoeia and National Formulary. The only objection was the one which had already been mentioned, that of having too many Sections, and having so many simultaneous sessions. This could not be helped, unfortunately, and the point was to arrange the Section sessions in such a way as not to interfere with each other. The proper thing, of course, would be to extend the meeting to ten days, instead of a week, but this would not be popular with the rank and file. This question of extension of time, however, was one that the Association must face in the near future.

For the sake of bringing the question to a vote, he would move "that this Section session recommend to the Council the creation of a Section upon U. S. Pharmacopoeia and National Formulary."

Prof. Sayre said he was somewhat particular as to the choice of a name for the proposed Section. He suggested "Formulary and Drug Standards," as that would include the U. S. P. and N. F. He was in favor of a broad policy, that would popularize the work and make it helpful to the physicians and the community at large.

Mr. Remington feared that if the question was complicated it would not be so likely to pass before the Council. He doubted the wisdom of complicating it by introducing all formulas. These were now taken care of by the Practical Pharmacy and Dispensing Section. He was in favor of limiting it to a Section on U. S. P. and National Formulary.

Mr. Eldred favored Mr. Remington's view of the matter. He thought if it was made a general Section the members would never know where papers were to go. He had changed his mind two or three times on this proposition, but it seemed to him now that it would be best to have a separate Section, provided it was understood that the Section on Scientific Papers and the Section on U. S. P. and N. F. should not hold simultaneous sessions.

Mr. Clark said he had overlooked the fact that the present session was just tentative, and that the members would be called upon to make a recommendation. He heartily favored the formation of this separate Section. He asked how it would do for this session to recommend to the Council the formation of a Section on U. S. P. and N. F., referring Mr. Sayre's paper to the Council at the same time.

Mr. Sayre said this was satisfactory, so far as he was concerned. But the words "United States" did not include the Homoeopathic or other Pharmacopoeias.

Mr. Gordin suggested the title "Section on Pharmacopoeias and Formularies," and Mr. Sayre agreed.

Mr. Remington suggested that Mr. Gordon make his motion as simple and as plain as possible.

Thereupon, Mr. Gordon put his motion in this form: That this session accept Mr. Sayre's paper and refer it to the Council, with the recommendation that a new Section on Pharmacopoeias and Formularies be established in the American Pharmaceutical Association.

The motion as stated was then put to a vote and carried.

The Chair said there was one other question to bring up, namely, that of officers for the new Section in the event of favorable action by the Council. He asked if it was the sense of the members that they should elect a chairman, vice-chairman and secretary, or whether they considered that it was better to leave such appointments to the Council.

Mr. Needham was of the opinion that the members now present, who had taken such an interest in the proposed Section, were the ones to elect its officers.

Mr. Gordon, on the other hand, thought the Council should be empowered to appoint the officers of the proposed Section for the next year, in case it acted favorably on the recommendation.

Mr. Remington said inasmuch as this was not yet a Section, he could not see how it could elect officers; therefore, it seemed plain to him that the Council should be asked to designate the first officers of the Section. He therefore moved that the Council be requested to designate the officers of the Section for the ensuing year, if it approved of the formation of such Section.

This motion was seconded by Messrs. Gordon and Sayre and carried.

The Chair stated he still had in his hands some papers which had not been presented, and he would entertain a motion that these be read by title and referred to the Publication Committee. On motion of Mr. Frazier, it was so ordered.

The Chair stated that the first of these papers was entitled, "Does the Medical Profession Read the United State Pharmacopoeia?—by H. L. Chambers, M. D. This was a paper submitted by a practicing physician, and contained some valuable information. Doctor Chambers, however, was not a member of this Association, and some special action would probably be necessary in regard to his paper.

Mr. Remington suggested that this paper might be included with the rest, and let the Publication Committee settle the question of its acceptance for publication, and the Chair stated that, without objection, this would be done.

The Chair then read by their titles the following: "To What Extent Shall Powdered Drugs be Recognized in the Ninth Revision of the U. S. P?" by C. M. Sterling. "Getting Ready for the 1920 Pharmacopoeia," by Wm. Mittlebach. "The U. S. P. as a Stepping Stone to Higher Ideals," by W. J. Frazier. "Suggestions Relative to Standards and Methods of Analysis," by L. F. Kebler. "The U. S. P. in a Retail Pharmacy," by W. H. Varnum.

This concluded the session of the tentative Section on Pharmacopoeias and Formularies, and on motion of Mr. Needham the session adjourned.

# VEGETABLE DRUGS EMPLOYED BY AMERICAN PHYSICIANS.[1]

JOHN URI LLOYD, PHAR. M.

## PART I—*Selection by Physicians Other than Eclectic.*

During the past year it became the pleasurable duty as well as opportunity of this writer, to make an historical study of both the beginnings and the records of the various vegetable remedies of the Pharmacopeia of the United States. This was issued as a 140 page Bulletin of the Lloyd Library, under the title, "History of the Vegetable Drugs of the Pharmacopeia of the United States."

Came then a question as to the relationship that existed between the various vegetable drugs official in the Pharmacopeia, as contrasted with vegetable remedies not thus recognized, and the extent to which remedies introduced by the Eclectic school of medicine, as well as those peculiar to the Eclectic practice, were employed by physicians of other schools. This led to the preparation of a list of drugs, embodying the principal remedies employed by the Eclectic school of medicine as well as those official. This was distributed to a number of physicians of *schools other than Eclectic,* all of whom were known to use vegetable remedies, and all of whom were graduates of colleges of recognized professional standing.

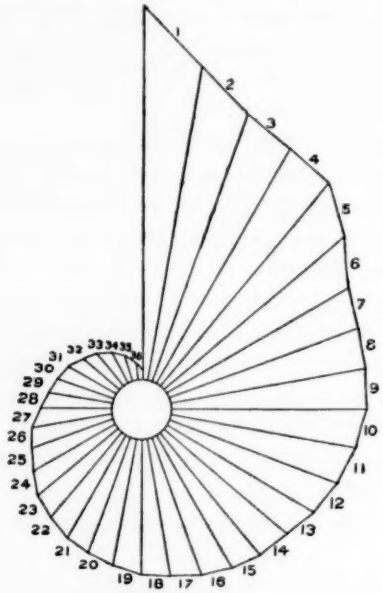


FIGURE - I

The reports received from these physicians were of exceeding interest, and furnished exceptional opportunity for comparative study of the remedies employed. The summary made from these reports is as follows, the accompanying diagram graphically illustrating the same, Fig. 1.

This diagram portrays in graphic form the comparative values of the remedies

[1]The author expresses his thanks to the house of Lloyd Brothers for permission to summarize the first two reports from their researches, as well as for their financial contribution to the expensive general study (No. 3) herewith presented.

named by the physicians contributing to this report. This figure, as well as Figure II (p. 1231), and III (p. 1236), is the device of Everett I. Yowell, Ph. D., Assistant Professor of Astronomy in the University of Cincinnati. He describes the construction of the shell as follows:

"The graphical representation of data is made, usually, either by straight lines of length proportional to the several given quantities, or by surfaces similarly proportional. The rectangle and circle are of frequent use, but are not available where many quantities are to be represented, on account of the great number of separate figures. In a case like this, a circle, for instance, may be divided into a set of sectors to represent the quantities, by making the central angles proportional to the quantities. This method is objectionable, if there is much disparity in the size of the several quantities, as in the present case; for the circle would have to be of enormous size to represent clearly the smaller quantities. The objection may be met by making a new figure, based on the circle; the central angles of the sectors are equal, but the lengths of the radii vary. Such sectorial areas are represented by numbers whose *square roots* represent the radii, enabling us to use a set of numbers for radii, much smaller than the given set. The bounding areas are not now continuous; this is remedied by replacing each arc by an inclined line, through its middle point, so drawn that consecutive ones meet on the radius common to two sectors. Thus we form a conch (*shell*) that expands as it curls, each partition of which represents one of our quantities. The center has been cut out of the present illustration to avoid the confusion of the meeting radii; the original numbers were increased by the proper amount (one in this case) to allow for this.—EVERETT I. YOWELL, PH. D

TABLE NO. I.

(Selecting of remedies by physicians, none of whom were Eclectic.)

1. Echinacea was named by 148 physicians.
2. Aconite was named by 108 physicians.
3. Macrotys (Cimicifuga) was named by 96 physicians.
4. Bryonia was named by 91 physicians.
5. Gelsemium was named by 89 phyiscians.
6. Pulsatilla was named by 60 physicians.
7. Veratrum was named by 57 physicians.
8. Belladonna was named by 55 physicians.
9. Cactus was named by 54 physicians.
10. Apocynum and Chionanthus were each named by 51 physicians.
11. Thuja was named by 49 physicians.
12. Nux Vomica was named by 45 physicians.
13. Phytolacca was named by 39 physicians.
14. Digitalis was named by 37 physicians.
15. Hydrastis was named by 36 physicians.
16. Lobelia was named by 34 physicians.
17. Dioscorea was named by 30 physicians.
18. Ipecac was named by 28 physicians.
19. Rhus Tox was named by 27 physicians.
20. Baptisia was named by 25 physicians.
21. Collinsonia and Cratægus were each named by 23 physicians.
22. Asclepias was named by 21 physicians.
23. Apis was named by 19 physicians.
24. Passiflora was named by 17 physicians.
25. Cannabis, Viburnum and Hyoscyamus were each named by 14 physicians.
26. Iris was named by 13 physicians.
27. Caulophyllum and Staphisagria by 11 physicians.
28. Scutellaria, Podophyllum, Eryngium, Mangifera and Helonias were each named by 9 physicians.
29. Colchicum, Colocynth, Sticta and Jaborandi were each named by 8 physicians.
30. Sanguinaria, Ignatia, Berberis aq., Mitchella, Salix Nigra Aments and Strophanthus were each named by 7 physicians.
31. Chelidonium and Drosera were each named by 6 physicians.
32. Calendula, Ergot, Eupatorium, Grindelia, Matricaria and Tiger Lily were each named by 5 physicians.
33. Adonis, Aletris, Black Haw (*Viburnum prunifolium*), Cantharides, Cypripedium and Leptandra were each named by 4 physicians.
34. Aesculus, Arnica, Asthma weed (*Euphorbia pilufifera*), Avena, Cascara, Conium, Elaterium, Erigeron, Euphorbia, Euphrasia, Lycopus, Sambucus, Saw Palmetto, Solanum and Valerian were each named by 3 physicians.

35. Achillea, Amygdalus, Ampelopsis, Aralia, Capsella, Catalpa, Coca, Dulcamara, Eucalyptus, Euonymus, Gravel Root (*Euptaorium purpureum*), Hamamelis, Pinus Can., Senecio, Stillingia and Xanthoxylum, were each named by 2 physicians.

36. Chelone glabra, Cinnamon, Convallaria, Anthemis, Cubeba, Equisetum, Fragrant Sumach (*Eupatorium aromaticum*), Fucus, Gentian, Gossypium, Hydrangea, Lupulin, Matico, Melilotus, Oenanthe crocata, Oxydendron, Piper Methysticum, Plantago, Polymnia, Prunus, Quercus, Rheum, Senna, Serpentaria and Taraxacum were each named by 1 physician.

37. None of the following were named by any physician:

Actæe alba,
Agrimonia,
Ailanthus,
Alnus,
Ambrosia,
American Hemp (Can. sat.),
Barosma,
Boletus,
Cactus Flowers,
Ceanothus,
Chimaphila,
Cinchona,
Cnicus,
Coffea,
Columbo,
Cornus,
Corydalis,
Damiana,
Epigæa,
Epilobium,
Frasera,
Fraxinus,
Galium,
Gaultheria,
Guaiacum,
Guarana,
Helleborus,
Hepatica,
Horse Chestnut,
Humulus,
Inula,
Jacaranda,
Jalap,
Juglans,
Kalmia,
Kamala,
Lappa,
Lycopodium,
Marrubium,
Myrica,
Nepeta,
Panax,
Penthorum,
Physostigma,
Polemonium,
Polystrichum,
Polygonatum,
Polygonum,
Prunella,
Ptelea,
Rhamnus Calif.,
Rubus,
Rumex,
Sarracenia,
Senega,
Spikenard,
Spotted Spurge,
Stigmata Maydis,
Stramonium,
Swamp Milkweed,
Trifolium,
Triticum,
Urtica,
Ustilago,
Verbascum,
White Snakeroot,
Xanthium Spinosum,
Yerba Santa,
Zingiber.

*Comments on Table No. I.*

The diagram accompanying (Fig. 1) presents at a glance the comparative importance, in their estimation, of the remedies named by the physicians taking part in this discussion. Scattered throughout the list are to be found drugs both official and non-official, in unexpected positions. For example, Echinacea, a non-official drug, heads the list, being named by 148 physicians, whilst in section 36, out of 25 drugs named by only one physician, 14 are official This last class embraces the old standards Prunus, Rhubarb, Senna, Serpentaria, Cubeba, Gentian, Cinnamon and Taraxacum. In like manner, in the thirty-fifth section (next to the last) Coca appears in company with such seemingly unimportant drugs as Gravel Root (*Eupatorium purpureum*) and Lycopus.

These facts lead one to ponder over the mighty problem that confronts Pharmacopoeial Revision Committees, whose aim it is to serve the professions of medicine and pharmacy in the selecting of the remedial agents that shall be added to or discarded from the Pharmacopœia. In this connection it is evident, from other considerations than the data embraced in this one summary, that many drugs need be considered from several angles. For example, Cinnamon (No. 35) is very important, for it is not only used enormously in culinary directions, but yields a popular oil, which is also a flavor of merit. Oil of Cubebs is also largely employed as a substitute for the drug itself. Cocaine is enormously used by physicians who do not use Coca as a whole, whilst special preparations, such as the bitterless tincture of Cascara, are favorite forms of the thus much employed Rhamnus purshiana. Enormous amounts of Senna, Buchu, Gentian and other

old favorites, are employed by makers of popular medicines, even though now comparatively neglected by prescribing physicians. Drugs such as Epilobium, Nepeta and Triticum are very properly preferred in decoction and infusion. Such remedies as these must, therefore, be considered by reason of their respective merits and special uses.

It is, however, a fact that many drugs, once supreme, are now obsolete, excepting as lingering relics of Pharmacopœial inheritance. Indeed, some cumberers of the Pharmacopœia have been professionally neglected, almost from the traditional European past, whilst many remedies much used at the present date are conspicuous by reason of their absence from the Pharmacopœia.

Among the striking surprises of Table No. I is the great proportion of official drugs that are scarcely noticed at all, as shown by the fact, already stated, that

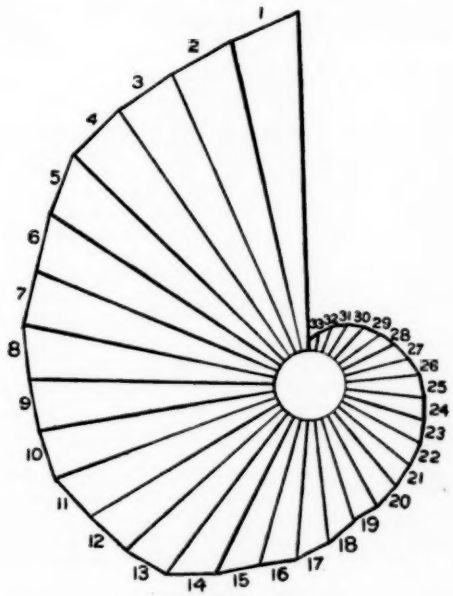


FIGURE II

out of twenty-five well-known drugs in the last class (No. 36) fourteen were official. Not less interesting, in this connection, is the fact that out of seventy drugs entirely ignored by every physician (No. 37) eighteen are yet official in the Pharmacopœia, some of them being very ancient Pharmacopœial stand-bys. A few of the causes for this condition have been mentioned, and others are recorded in *Part Three* of this paper.

## PART II.—*Selection of Remedies by Eclectic Physicians.*

Since the opinion of no Eclectic physician was voiced in Table No. I, and since in the practice of Eclectic physicians many plant preparations and botanical drugs unrecognized in the U. S. P. have, for many decades, predominated, arose now the question as to how physicians of the Eclectic school of medicine would report

upon the same list of remedies. This led to the distribution among a like number of Eclectic physicians of the list that had previously been sent to physicians of other schools, with the request that the remedies be by them marked, in the order of their importance and use. The reports received from these Eclectic physicians were of increasing interest, especially when contrasted with those previously received from physicians of other schools, and as regards the similarity of the selection, there being a marked resemblance between the two classes, as shown by the following extract from the summing up made by us at that time:

"For the graphic illustration showing the relative importance of the vegetable remedies as used by physicians of the Eclectic school, see the accompanying diagram. (Fig. No. II.)[3] The table following shows in a striking manner the comparative importance of each drug, as named by the physicians of the Eclectic school, and also by physicians of schools other than Eclectic."

TABLE No. II.

| Rank as named by Eclectic physicians | | | | Rank in Table No. I, by physicians other than Eclectic. |
|---|---|---|---|---|
| 1 | Gelsemium | named by | 105 Eclectic physicians | 5 |
| 2 | Aconite | named by | 96 Eclectic physicians | 2 |
| 3 | Bryonia | named by | 91 Eclectic physicians | 4 |
| 4 | Macrotys | named by | 90 Eclectic physicians | 3 |
| 5 | Echinacea | named by | 86 Eclectic physicians | 1 |
| 6 | Belladonna | named by | 69 Eclectic physicians | 8 |
| 7 | Veratrum | named by | 68 Eclectic physicians | 7 |
| 8 | Nux Vomica | named by | 66 Eclectic physicians | 12 |
| 9 | Phytolacca | named by | 59 Eclectic physicians | 13 |
| 10 | Lobelia | named by | 58 Eclectic physicians | 16 |
| 11 | Pulsatilla | named by | 57 Eclectic physicians | 7 |
| 12 | Cactus | named by | 49 Eclectic physicians | 9 |
| 13 | Ipecac | named by | 47 Eclectic physicians | 18 |
| 14 | Apocynum | named by | 41 Eclectic physicians | 10 |
| | Chionanthus | named by | 41 Eclectic physicians | 10 |
| 15 | Rhus Tox | named by | 29 Eclectic physicians | 19 |
| 16 | Dioscorea | named by | 25 Eclectic physicians | 17 |
| 17 | Hydrastis | named by | 23 Eclectic physicians | 15 |
| 18 | Podophyllum | named by | 16 Eclectic physicians | 28 |
| 19 | Asclepias | named by | 15 Eclectic physicians | 22 |
| 20 | Collinsonia | named by | 14 Eclectic physicians | 21 |
| | Thuja | named by | 14 Eclectic physicians | 11 |
| 21 | Apis | named by | 13 Eclectic physicians | 23 |
| 22 | Ergot | named by | 12 Eclectic physicians | 32 |
| 23 | Passiflora | named by | 11 Eclectic physicians | 24 |
| 24 | Baptisia | named by | 10 Eclectic physicians | 20 |
| | Virburnum (opulus) | named by | 10 Eclectic physicians | 33 |
| | Digitalis | named by | 10 Eclectic physicians | 14 |
| 25 | Cratægus | named by | 9 Eclectic physicians | 21 |
| 26 | Jaborandi | named by | 8 Eclectic physicians | 29 |
| 27 | Avena | named by | 7 Eclectic physicians | 34 |
| | Colocynth | named by | 7 Eclectic physicians | 29 |
| | Eryngium | named by | 7 Eclectic physicians | 28 |
| | Sanguimaria | named by | 7 Eclectic physicians | 30 |
| 28 | Black Haw | named by | 6 Eclectic physicians | 33 |

[3] For explanation of diagram, see page 1229.

TABLE No. II.—Continued.

| | | | | | |
|---|---|---|---|---|---|
| 29 | Caulophyllum | named by | 5 | Eclectic physicians | 27 |
| | Iris | named by | 5 | Eclectic physicians | 26 |
| | Stillingia | named by | 5 | Eclectic physicians | 35 |
| | Tiger Lily | named by | 5 | Eclectic physicians | 32 |
| 30 | Berberis | named by | 4 | Eclectic physicians | 30 |
| | Cannabis | named by | 4 | Eclectic physicians | 25 |
| | Helonias | named by | 4 | Eclectic physicians | 28 |
| | Drosera | named by | 4 | Eclectic physicians | 31 |
| | Matricaria | named by | 4 | Eclectic physicians | 32 |
| | Senecio | named by | 4 | Eclectic physicians | 35 |
| 31 | Convallaria | named by | 3 | Eclectic physicians | 36 |
| | Fragrant Sumach | named by | 3 | Eclectic physicians | 36 |
| | Gossypium | named by | 3 | Eclectic physicians | 36 |
| | Hydrangea | named by | 3 | Eclectic physicians | 36 |
| | Mangifera | named by | 3 | Eclectic physicians | 28 |
| | Rumex | named by | 3 | Eclectic physicians | (unnamed) |
| | Salix Nigra | named by | 3 | Eclectic physicians | 30 |
| | Scutellaria | named by | 3 | Eclectic physicians | 28 |
| | Strophanthus | named by | 3 | Eclectic physicians | 30 |
| | Xanthoxylum | named by | 3 | Eclectic physicians | 35 |
| 32 | Agrimonia | named by | 2 | Eclectic physicians | (unnamed) |
| | Aletris | named by | 2 | Eclectic physicians | 33 |
| | Cascara | named by | 2 | Eclectic physicians | 34 |
| | Chelidonium | named by | 2 | Eclectic physicians | 31 |
| | Cinnamon | named by | 2 | Eclectic physicians | 36 |
| | Euphrasia | named by | 2 | Eclectic physicians | 34 |
| | Gravel Root | named by | 2 | Eclectic physicians | 35 |
| | Grindelia | named by | 2 | Eclectic physicians | 32 |
| | Ignatia | named by | 2 | Eclectic physicians | 30 |
| | Leptandra | named by | 2 | Eclectic physicians | 33 |
| | Plantago | named by | 2 | Eclectic physicians | 33 |
| | Triticum | named by | 2 | Eclectic physicians | (unnamed) |
| 33 | Ailanthus | named by | 1 | Eclectic physician | (unnamed) |
| | Amygdalus | named by | 1 | Eclectic physician | 35 |
| | Anthemis | named by | 1 | Eclectic physician | 36 |
| | Calendula | named by | 1 | Eclectic physician | 32 |
| | Capsella | named by | 1 | Eclectic physician | 35 |
| | Chimaphila | named by | 1 | Eclectic physician | (unnamed) |
| | Colchicum | named by | 1 | Eclectic physician | 29 |
| | Cypripedium | named by | 1 | Eclectic physician | 33 |
| | Epigæa | named by | 1 | Eclectic physician | (unnamed) |
| | Equisetum | named by | 1 | Eclectic physician | 36 |
| | Eucalyptus | named by | 1 | Eclectic physician | 35 |
| | Euonymus | named by | 1 | Eclectic physician | 35 |
| | Euphorbia | named by | 1 | Eclectic physician | 34 |
| | Fucus | named by | 1 | Eclectic physician | 36 |
| | Gentian | named by | 1 | Eclectic physician | 36 |
| | Geranium | named by | 1 | Eclectic physician | (unnamed) |
| | Hammelis | named by | 1 | Eclectic physician | 35 |
| | Inula | named by | 1 | Eclectic physician | (unnamed) |
| | Marrubium | named by | 1 | Eclectic physician | (unnamed) |
| | Melilotus | named by | 1 | Eclectic physician | 36 |
| | Oenanthe | named by | 1 | Eclectic physician | 36 |
| | Oxydendron | named by | 1 | Eclectic physician | 36 |
| | Panax | named by | 1 | Eclectic physician | (unnamed) |
| | Physostigma | named by | 1 | Eclectic physician | (unnamed) |
| | Polymnia | named by | 1 | Eclectic physician | 36 |
| | Ptelia | named by | 1 | Eclectic physician | (unnamed) |
| | Rhamnus Cal | named by | 1 | Eclectic physician | (unnamed) |
| | Staphisagria | named by | 1 | Eclectic physician | 27 |
| | Sticta | named by | 1 | Eclectic physician | 29 |
| | Stramonium | named by | 1 | Eclectic physician | (unnamed) |
| | Taraxacum | named by | 1 | Eclectic physician | 36 |
| | Zingiber | named by | 1 | Eclectic physician | (unnamed) |

*Comments on Table No. II.*

Comparison of the list of remedies as employed by Eclectic physicians, with the selection made by physicians of schools other than Eclectic.

Comparing the remedies selected by physicians of the Eclectic school with those presented in Table No. I, compiled from reports of physicians of schools other than Eclectic, we find as a rule a striking similarity in the remedies selected. The main remedies, as given in the first part of each list (compare the ranking numbers, given in the first and last columns of Table No. II) are substantially the same, and the remedies named in one list are, as a rule, included in the other, although the *position* varies somewhat. Aconite stands second in each list, while Bryonia and Macrotys change places, each being third in one list and fourth in the other. Gelsemium and Echinacea also change places in the two lists, Gelsemium heading the list of remedies named by the Eclectic physicians, and holding fifth place in the list of physicians other than Eclectic. Exactly the reverse is true of Echinacea, which *heads the list* of remedies named by physicians other than Eclectic, while it stands fifth in rank as named by Eclectic physicians. This fact is especially interesting when we consider that Echinacea was introduced to the profession by Eclectic physicians, was long employed and highly valued by them alone, and is still, by the general profession, credited as being an "Eclectic remedy." In other directions, marked deviations occur. For example, Podophyllum, which stands eighteenth in the Eclectic list, falls to 28 in the list of physicians other than Eclectic, while *Digitalis,* No. 24 in the Eclectic list, ranks as No. 14 in the other list. The low rank given to Digitalis by Eclectic physicians is probably due to the fact that the Eclectic school of medicine has made exceptional studies of more kindly remedies for heart control than the energetic Digitalis. Among the features that will be surprisingly interesting is the fact that Hydrastis stands No. 17 in the Eclectic list, and No. 15 in the companion list, although Hydrastis has for seventy-five years been a recognized "Eclectic remedy."

Remarkable and very interesting comparisons between these two lists may be made in many directions. For example, Pulsatilla, a drug introduced by the Homeopathic profession, and next popular in the Eclectic school, stands No. 11 in the Eclectic list and No. 7 in that of physicians of schools other than Eclectic. Cactus, another presumably Eclectic favorite, stands No. 12 in the Eclectic list and No. 9 in the companion list. However, comparative studies such as these can be made by whoever is interested in this direction, and no doubt many will examine the two lists here given with much interest.

The two studies, a brief resumé of which is here given, indicate that the practicing physicians of America now freely employ any remedial agent that appeals to them as being useful, regardless of either its origin, or the school affiliations of its introducers. Remedies introduced by the Eclectic profession during its seventy-five years' existence are now found in all the Pharmacopœias of the world, and are as freely employed by physicians of other schools as by Eclectics. Indeed, as shown by a comparison of the two lists herein presented, many old-time Pharmacopœial drugs have been abandoned by their former friends, and replaced by the newer Eclectic discoveries. As examples of such we would mention Rumex, Triticum and Zingiber, that were completely ignored by physicians of schools other than Eclectic, although these drugs have had Pharmacopœial records for all

time, and still hold a place among the official remedies named in the Pharmacopœia of 1900.

## PART III.

Came finally a more cosmopolitan question, namely, whether *either* of the lists herein presented was fairly representative of the consumption of vegetable remedies by the entire body of general practitioners of the American medical profession. Having become thus involved in the study of this problem, the writer concluded that the question could be fairly answered only through the summarizing of reports from many thousands of physicians, scattered over the entire United States, and embracing all vegetable drugs of any importance whatever. Accordingly, a new list was made of vegetable drugs, embracing all those official in the Pharmacopœia, all the Eclectic vegetable drugs, and in addition the principal members of the Homeopathic materia medica, thus covering all the vegetable drugs employed to any extent by physicians in America, regardless of school or professional affiliation. Under cover of letter postage, and carrying each a return stamped (letter postage) envelope addressed to the writer of this paper, this list was sent to 30,000 physicians, located in every section of the United States, with a request reading as follows:

> This page carries the names of all the vegetable drugs of the Pharmacopœia of the United States, 1900 edition, together with those used in the practice of physicians generally.
> Place a double cross (xx) before remedies of great value in your practice. Example: xx *Aconite.*
> Place a *single* cross (x) before all remedies *less* important. Example: x *Aesculus.*
> *Cross off* all remedies *not used at all* in your practice. Example: Achillea.

In choosing the physicians to whom this list was sent pains were taken to establish that each should be one whose college of graduation was known, and every physician contributing to the report filled out a blank giving both his college of graduation and the date of his graduation, but no other reference whatever was made to professional affiliations. At the time the summarizing of these reports was made more than 10,000 reports from practicing physicians had been received, to which it may be added that the reports subsequently received (too late to be officially recorded) are seemingly in accordance with those previously received and summarized.

In selecting the names of physicians to whom the list was sent an attempt was made to choose, as far as possible, only those engaged in the general practice of medicine, and directions were given that the list be compiled from the Medical Directory in such a manner as to include only a moderate number of physicians from each city. It was hoped that in this manner the general *country* practitioner might be prevented from being hopelessly outclassed by the large number of *specialists* in cities, who might not properly be included in a list of "practicing physicians."

The reports from this final list of drugs are of exceeding interest, as taken in connection with those previously mentioned. They are graphically presented in Fig. No. III, the drugs included being named in Table No. III.[4]

Owing to the large number of reports summarized in this diagram, and the

[4] For explanation of the diagram, see page 1229.

many drugs represented therein (more than two hundred in number), as well as to the fact that many of these were nearly identical in rank, it was impossible to make the divisions of the wheel represent *single* drugs. They were therefore divided by Professor Yowell into *groups,* or *classes,* beginning with the drug most

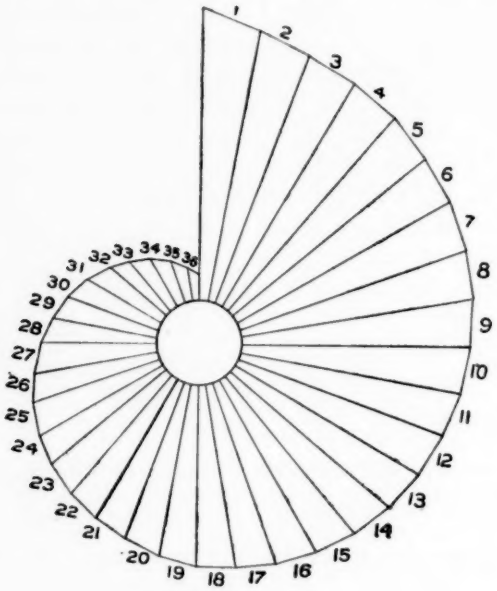


FIGURE — III

frequently named, the difference between these groups being greater than the difference between the successive members of a group.

TABLE No. III.

(The asterisk before a drug indicates that it is official in the 1900 edition of the U. S. P.)

| | | |
|---|---|---|
| 1 | Cactus, (Flowers and Stem)..... | mentioned by 6239 physicians |
| 2 | *Hydrastis ..... | mentioned by 5634 physicians |
| | *Aconite ..... | mentioned by 5618 physicians |
| | *Gelsemium ..... | mentioned by 5540 physicians |
| | *Ipecac ..... | mentioned by 5501 physicians |
| 3 | *Digitalis ..... | mentioned by 5436 physicians |
| | *Ergot ..... | mentioned by 5402 physicians |
| | *Belladonna ..... | mentioned by 5343 physicians |
| 4 | *Nux Vomica..... | mentioned by 5246 physicians |
| | *Hyoscyamus ..... | mentioned by 5229 physicians |
| 5 | Echinacea ..... | mentioned by 5065 physicians |
| | *Viburnum prunifolium, (*Black Haw*) | mentioned by 4996 physicians |
| | *Valerian ..... | mentioned by 4956 physicians |
| | *Podophyllum ..... | mentioned by 4949 physicians |
| 6 | Thuja ..... | mentioned by 4915 physicians |
| | *Opium ..... | mentioned by 4915 physicians |
| | *Rhamnus purshiana, (*Cascara*)..... | mentioned by 4870 physicians |
| | Bryonia ..... | mentioned by 4653 physicians |
| | *Colchicum ..... | mentioned by 4808 physicians |
| 7 | *Capsicum ..... | mentioned by 4710 physicians |
| | *Lobelia ..... | mentioned by 4596 physicians |

TABLE No. III—Continued.

| | | |
|---|---|---|
| 8 | Pulsatilla | mentioned by 4564 physicians |
| | *Apocynum | mentioned by 4548 physicians |
| | *Gentiana | mentioned by 4516 physicians |
| | *Sabal, (*Saw Palmetto*) | mentioned by 4481 physicians |
| | *Veratrum, (*V. viride*) | mentioned by 4480 physicians |
| | *Hamamelis | mentioned by 4454 physicians |
| 9 | *Phytolacca | mentioned by 4420 physicians |
| | *Viburnum, (*V. opulus*) | mentioned by 4377 physicians |
| | *Cimicifuga, (*Macrotys*) | mentioned by 4352 physicians |
| | Collinsonia | mentioned by 4282 physicians |
| 10 | *Cannabis Indica | mentioned by 4239 physicians |
| | Passiflora | mentioned by 4162 physicians |
| | Chionanthus | mentioned by 4154 physicians |
| | *Arnica | mentioend by 4123 physicians |
| 11 | *Strophanthus | mentioned by 4077 physicians |
| | *Cinchona | mentioned by 4033 physicians |
| | *Sanguinaria | mentioned by 3955 physicians |
| 12 | Caulophyllum | mentioned by 3920 physicians |
| | *Cinnamon | mentioned by 3913 physicians |
| | Rhus Tox | mentioned by 3858 physicians |
| | *Colocynth | mentioned by 3814 physicians |
| | Gaultheria (*Oil of Gautheria* is official) | mentioned by 3794 physicians |
| 13 | Dioscorea | mentioned by 3775 physicians |
| | Baptisia | mentioned by 3753 physicians |
| | Asclepias | mentioned by 3747 physicians |
| | *Eriodictyon, (*Yerba Santa*) | mentioned by 3650 physicians |
| 14 | *Eucalyptus | mentioned by 3623 physicians |
| | Elaterium, (Elaterinum is official) | mentioned by 3579 physicians |
| 15 | Iris | mentioned by 3474 physicians |
| | *Mentha piperita | mentioned by 3464 physicians |
| | *Stillingia | mentioned by 3451 physicians |
| | *Senna | mentioned by 3441 physicians |
| | *Leptandra | mentioned by 3434 physicians |
| | *Carbo Ligni, (*Wood Charcoal*) | mentioned by 3390 physicians |
| | Helonias | mentioned by 3345 physicians |
| | *Pilocarpus, (*Jaborandi*) | mentioned by 3340 physicians |
| 16 | *Grindelia | mentioned by 3288 physicians |
| | *Gossypium | mentioned by 3236 physicians |
| | *Stramonium | mentioned by 3233 physicians |
| | Aletris | mentioned by 3224 physicians |
| | Hydrangea | mentioned by 3151 physicians |
| 17 | *Glycyrrhiza | mentioned by 3079 physicians |
| | *Cubeba | mentioned by 2978 physicians |
| | *Guaiacum | mentioned by 2966 physicians |
| 18 | *Taraxacum | mentioned by 2902 physicians |
| | *Santonica | mentioned by 2894 physicians |
| 19 | *Calendula | mentioned by 2761 physicians |
| | Cratægus | mentioned by 2747 physicians |
| | *Jalap | mentioned by 2739 physicians |
| | *Rheum | mentioned by 2726 physicians |
| | *Triticum | mentioned by 2717 physicians |
| | Damiana | mentioned by 2676 physicians |
| 20 | *Berberis | mentioned by 2607 physicians |
| | *Physosistigma | mentioned by 2599 physicians |
| | *Sarsaparilla | mentioned by 2596 physicians |
| | *Xanthoxylum | mentioned by 2565 physicians |
| | Trifolium | mentioned by 2553 physicians |
| | Drosera | mentioned by 2515 physicians |
| | *Quassia | mentioned by 2495 physicians |
| | Rhus aromatica, (*Fragrant Sumach*) | mentioned by 2488 physicians |
| | Avena | mentioned by 2467 physicians |

TABLE No. III—Continued.

| | | |
|---|---|---|
| 21 | *Scutellaria | mentioned by 2444 physicians |
| | Ignatia | mentioned by 2433 physicians |
| | *Scilla | mentioned by 2410 physicians |
| | Erigeron, (*Oil of Erigeron* is Official) | mentioned by 2388 physicians |
| | *Coca | mentioned by 2387 physicians |
| | Adonis | mentioned by 2386 physicians |
| | *Conium | mentioned by 2379 physicians |
| | Eupatorum purpureum, (*Gravel Root*) | mentioned by 2352 physicians |
| | *Uva Ursi | mentioned by 2329 physicians |
| 22 | Coffea, (*Caffeine* is official) | mentioned by 2300 physicians |
| | *Lycopodium | mentioned by 2279 physicians |
| | *Convallaria | mentioned by 2262 physicians |
| | *Zingiber | mentioned by 2258 physicians |
| | *Geranium | metionned by 2228 physicians |
| | *Senega | mentioned by 2201 physicians |
| 23 | *Staphisagria | mentioned by 2145 physicians |
| | Chelidonium | mentioned by 2128 physicians |
| | *Euonymus | mentioned by 2086 physicians |
| | Eryngium | mentioned by 2076 physicians |
| | Pinus canadensis | mentioned by 2066 physicians |
| | *Cypripedium | mentioned by 2062 physicians |
| | *Lupulin | mentioned by 2052 physicians |
| | *Calumba | mentioned by 2052 physicians |
| | *Sassafras | mentioned by 2042 physicians |
| | *Eupatorium, (*E. perfoliatum*) | mentioned by 2031 physicians |
| | *Serpentaria | mentioned by 2019 physicians |
| 24 | Rumex | mentioned by 1992 physicians |
| | Euphorbia pilulifera, (*Asthma Weed*) | mentioned by 1978 physicians |
| | Mitchella | mentioned by 1952 physicians |
| | Salix Nigra Aments | mentioned by 1950 physicians |
| | Aesculus hippocastanum, (*Horse Chestnut*) | mentioned by 1924 physicians |
| | Aesculus, (*Aes. glabra*) | mentioned by 1894 physicians |
| 25 | *Sumbul | mentioned by 1850 physicians |
| | Sticta | mentioned by 1825 physicians |
| | Helleborus | mentioned by 1742 physicians |
| 26 | Juglans | mentioned by 1700 physicians |
| | Senecio | mentioned by 1692 physicians |
| | *Aspidium | mentioned by 1681 physicians |
| | *Humulus | mentioned by 1654 physicians |
| | *Spigelia | mentioned by 1654 physicians |
| | Amygdalus | mentioned by 1596 physicians |
| 27 | *Caryophyllus | mentioned by 1528 physicians |
| | Lilium tigrinum, (*Tiger Lily*) | mentioned by 1506 physicians |
| | *Zea, (*Stigmata Maydis*) | mentioned by 1504 physicians |
| | *Cardamomum | mentioned by 1478 physicians |
| | *Prunus | mentioned by 1426 physicians |
| | *Chimaphila | mentioned by 1422 physicians |
| | Piper methysticum | mentioned by 1409 physicians |
| | Dulcamara | mentioned by 1389 physicians |
| 28 | *Mentha virdis | mentioned by 1345 physicians |
| | *Buchu, (*Barosma*) | mentioned by 1316 physicians |
| | Euphrasia | mentioned by 1293 physicians |
| | Euphorbia, (*E. corollata*) | mentioned by 1280 physicians |
| | Lycopus | mentioned by 1268 physicians |
| | *Aurantii Am. Cort. | mentioned by 1263 physicians |
| | *Lactucarium | mentioned by 1219 physicians |
| 29 | *Hæmatoxylon | mentioned by 1201 physicians |
| | Sambucus | mentioned by 1145 physicians |
| | *Anisum | mentioned by 1110 physicians |
| | *Scoparius | mentioned by 1102 physicians |
| | *Matricaria | mentioned by 1096 physicians |
| | Hepatica | mentioned by 1077 physicians |

TABLE No. III—Continued.

| | | |
|---|---|---|
| 30 | Corydalis | mentioned by 1040 physicians |
| | *Lappa | mentioned by 1000 physicians |
| | Mangifera | mentioned by 999 physicians |
| | *Quercus | mentioned by 992 physicians |
| | Plantago | mentioned by 986 physicians |
| | Rhamnus calif. | mentioned by 952 physicians |
| | *Galla | mentioned by 951 physicians |
| | *Guarana | mentioned by 940 physicians |
| | Solanum | mentioned by 928 physicians |
| 31 | Aralia racemosa, (*Spikenard*) | mentioned by 888 physicians |
| | *Rhus glabra | mentioned by 859 physicians |
| | Verbascum | mentioned by 850 physicians |
| | *Anthemis | mentioned by 844 physicians |
| | Capsella | mentioned by 844 physicians |
| | *Krameria | mentioned by 825 physicians |
| | Oxydendron | mentioned by 813 physicians |
| | Urtica | mentioned by 810 physicians |
| | Oenanthe crocata | mentioned by 806 physicians |
| | Ailanthus | mentioned by 802 physicians |
| | Ustilago | mentioned by 802 physicians |
| | Alnus | mentioned by 800 physicians |
| | Myrica | mentioned by 795 physicians |
| | Kalmia | mentioned by 790 physicians |
| | Melilotus | mentioned by 779 physicians |
| | *Pepo | mentioned by 778 physicians |
| | *Sabina | mentioned by 777 physicians |
| | Polymnia | mentioned by 775 physicians |
| | Equisetum | mentioned by 772 physicians |
| | *Calamus | mentioned by 757 physicians |
| 32 | *Aralia spinosa, (*Aralia*) | mentioned by 725 physicians |
| | Achillea | mentioned by 717 physicians |
| | *Cassia fistula | mentioned by 715 physicians |
| | Cornus | mentioned by 713 physicians |
| | *Marrubium | mentioned by 706 physicians |
| | Agrimonia | mentioned by 684 physicians |
| | Fucus | mentioned by 633 physicians |
| | *Prunum | mentioned by 626 physicians |
| | Ambrosia | mentioned by 625 physicians |
| | Epilobium | mentioned by 621 physicians |
| | Fraxinus | mentioned by 621 physicians |
| 33 | Egipæa | mentioned by 609 physicians |
| | *Granatum | mentioned by 599 physicians |
| | *Pareira | mentioned by 595 physicians |
| | *Multum | mentioned by 592 physicians |
| | *Hedeoma | mentioned by 592 physicians |
| | Eupatorium aromaticum, (*White Snakeroot*) | mentioned by 582 physicians |
| | *Myristica | mentioned by 581 physicians |
| | *Pimenta | mentioned by 531 physicians |
| | Boletus | mentioned by 530 physicians |
| | *Mezereum | mentioned by 528 physicians |
| | *Fœniculum | mentioned by 520 physicians |
| | *Matico | mentioned by 516 physicians |
| | *Rubus | mentioned by 513 physicians |
| | Kamala | mentioned by 499 physicians |
| | *Coriandrum | mentioned by 495 physicians |
| | Galium | mentioned by 493 physicians |
| | Polygonum | mentioned by 492 physicians |
| | Asclepias incarnata, (*Swamp Milkweed*) | mentioned by 488 physicians |

| | | | |
|---|---|---|---|
| 34 | *Frangula | mentioned by | 479 physicians |
| | Actæa alba | mentioned by | 474 physicians |
| | Ceanothus | mentioned by | 470 physicians |
| | *Nepeta | mentioned by | 455 physicians |
| | Ptelea | mentioned by | 444 physicians |
| | Anemopsis | mentioned by | 425 physicians |
| | *Salvia | mentioned by | 420 physicians |
| | Inula | mentioned by | 418 physicians |
| | Panax | mentioned by | 408 physicians |
| | Euphorbia hypericifolia, (*Spotted Spurge*) | mentioned by | 406 physicians |
| | Prunella | mentioned by | 375 physicians |
| | Chelone | mentioned by | 369 physicians |
| | Polytrichum | mentioned by | 366 physicians |
| | Jacaranda | mentioned by | 364 physicians |
| 35 | *Carum | mentioned by | 348 physicians |
| | Catalpa | mentioned by | 332 physicians |
| | Penthorum | mentioned by | 331 physicians |
| | *Cusso | mentioned by | 320 physicians |
| | Xanthium | mentioned by | 316 physicians |
| | *Scopola | mentioned by | 298 physicians |
| | *Chirata | mentioned by | 267 physicians |
| | *Quillaja | mentioned by | 253 physicians |
| 36 | Polygonatum | mentioned by | 246 physicians |
| | Sarracenia | mentioned by | 244 physicians |
| | Polemonium | mentioned by | 221 physicians |
| | Frasera | mentioned by | 213 physicians |
| | Cnicus | mentioned by | 145 physicians |

*Comments on Table III.*

Many surprises appear in Table III, none being greater to the writer than that which came in the name of the drug heading the list, which might rationally have been expected to occupy a position far down the line. Instead, this drug, in the opinion of Professor Yowell, who devised the diagram (see note page 1229), stands so far above the others as to form a class to itself.

Another surprise to the writer is, that the exclusively American drug, Hydrastis, precedes Aconite, a great favorite among physicians of all schools of medicine, that has for over a century enjoyed a world-wide reputation. Likewise, just how such a drug as Viburnum prunifolium comes to rank in Class 5, and to precede the world-known Podophyllum, of the same class, is inexplicable. The same remark might be made concerning many other drugs, in other classes.

It is of interest to note that Capsicum and Lobelia, two Thomsonian sheet anchors, form a class (No. 7) to themselves, which could not have occurred through their selection by Thomsonian physicians, these being few in proportion to the physicians of other schools.

It will be observed that while Pharmacopœial drugs dominate the first twenty-three classes, this is also true of Classes 33 and 35, while the last class (No. 36) is composed wholly of unofficial drugs. In this connection it should be stated that the printed list submitted to physicians[5] had no mark to designate drugs as Pharmacopœial or otherwise, the name only of the drug appearing.

We must not overlook the fact previously mentioned (p. 1230) that many drugs seldom employed as simples (as Santonica) yield constituents that are freely em-

[5] This list accompanies our paper.

ployed in medicine under distinctive names, whilst others, seemingly little used, are employed largely in the form of unofficial pharmaceutical preparations of which these drugs form a part. This phase of the subject has, however, been already discussed.

In considering the subject broadly, the writer is led to the opinion that the majority of physicians are guided in their uses of remedies by their own judgment, based upon clinical observation and professional necessity. It is evident that physicians in actual practice generally prescribe as they see fit, regardless of whether a drug or a preparation is mentioned in the Pharmacopœia or has been recommended by their therapeutic instructors, or whether it be advocated or not by the leaders now in authoritative positions.

The writer will freely confess that a study such as this leads to distractive confusion and a shattering of ideals. It reminds him of an experience some years ago when, hoping to curtail the number of cathartic remedies that it was his duty to prepare for physicians, he ventured to send a list of the best known cathartics to a selected number of physicians who, by reason of their practice and positions, might be considered representative, with a request that they cross off from the list each cathartic that in their opinion could be excluded from the physician's armamentarium. To his surprise, the reports indicated not only the advisability of retaining the entire list, but the increasing of it by several additions.

Unquestionably, many physicians of prominence do not use remedies that with others are favorites, and vice versa. Possibly, also, the reports here summarized are dominated by physicians versed in the use of vegetable remedies, those neglecting them failing to reply. In passing it may be said that one physician crossed off every item but Opium, with the comment that no other remedy was necessary!

In it all the writer feels under many obligations to the many physicians who have collaborated with him in this work, and who, without exception, took great pains to be courteous, while many were even enthusiastic. Many hundreds of letters of great interest came to him in connection with this list, but these necessarily cannot be even commented on in these pages.

This paper may well close with the remark that, in the writer's opinion, the Pharmacopœial Committee is confronted, in drug selection, with a perplexing problem. Whatever may be their action, criticism is certain in some directions because of remedies *included,* whilst in other directions, certain of the remedies *excluded* will be made subjects of adverse comment. Drugs that with many physicians are favorites will surely be omitted from the 1910 revision of the U. S. P. whilst others little used by some practicing physicians will certainly be retained. Be this as it may, it is to be hoped that this study, with its many striking features, will lead those inclined to harsh criticism and strictures to a more liberal comprehension of the materia medica problem as a whole, and to a kindlier view, when the new edition of the Pharmacopœia appears, in case they feel that blunders of either omission or commission have been made. At any rate, in case this statistical study be placed on record, it will, as time goes by, be of interest to those desirous of commenting upon the drug records of the past.

# THE U. S. P. IN A RETAIL PHARMACY.

WALTER H. VARNUM.

The subject which I intend to present to you in this paper is one that is not only of great importance to a retail pharmacist but if not taken in hand at once, is going to be very detrimental to the profession. It is not the use of the Pharmacopoeia that is the trouble with the average druggist, but the lack of it. It is very unfortunate that it is necessary to treat of this subject at all, but owing to a large number of unethical proprietors, the use of the Pharmacopoeia is growing less every day.

There are several reasons for this, primarily "lack of habit." A druggist does more different kinds of work by routine than any other professional man. The first few years he is in a store he is learning or getting the habit. Which ever way this may be, good or bad, it will stick to him in after years.

Increased competition and a large stock of side lines, have caused proprietors to give less time to the pharmaceutical end of their store and more time to the front end or sundry department. They have changed from the old and established methods of making U. S. P. preparations from the crude drug, by percolation, maceration, or solution, to the new and time-saving plan of using the fluidextracts as a base for tinctures, spirits, infusions, syrups, etc. These men soon lose the habit and their clerks who are the future proprietors soon follow in the same rut. This is the cause of so many preparations being found by the pure food inspector to be the wrong strength. I believe that 99 out of 100 samples picked up by him, "weighed in the balance and found wanting" are either made from fluidextracts, or by men accustomed to this practice.

A druggist that is so unethical as to fill his stock bottles with this grade of goods will not take the time to test them but will take for granted that the formula on the bottle is correct. These men have lost the habit and are so unaccustomed to using the Pharmacopoeia that when it it necessary to use it they have become careless and make a bad job of it, rather than turning out a nice clear, full strength preparation. These men do not know that there are tests and assays given there for their special benefit. All preparations whether made from fluidextracts or crude drugs should be tested, if there is any possible way to do so, before dispensing.

To show how easy a mistake is liable to occur, we will take, for instance Fluidextract Digitalis. This is the formula on the bottle for making the tincture,

| | | |
|---|---|---|
| Fld. ext. Digitalis | 1 ⅗ | fl. oz. |
| Alcohol q. s | 16 | fl. oz. |

The graduates that are found in a drug store are not marked in fifth ounces so the careless druggist, in order to save time, will not measure it down to the minimum, but will be contented to guess at 3/5 oz., and as a result his tincture is not U. S. P. strength. Not only is the strength wrong but the druggist will label it "U. S. P." No druggist has a right to label any preparation U. S. P. that is not made according to the direction in the United States Pharmacopoeia. The

only druggists in the United States that assay and standardize their preparations are the ones that really make U. S. P. preparations.

Some of the assays and tests I believe are a little beyond some of the druggists. While college graduates are growing in number, there are still a good many of the profession that received their early education where scientific chemistry was not known and unless they have studied up on it since, they are not prepared to carry out the directions of the U. S. P. This however, should be no excuse because it is possible to procure clerks that are capable, and apparatus that is necessary to conduct any of these tests. The simpler these tests can be made, the better for everybody concerned.

I do not want you to think that this is the case everywhere, there is a bright side to pharmacy if we will only grasp it. The future is just what you men wish to make it. The membership of the A. Ph. A. is large enough to turn the tide one way or the other. One thing above all others, use your Pharmacopoeia and show your apprentice how to use it.

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## KEEPING UP ASSOCIATION MEMBERSHIP.

Apparently the only way to develop a big membership, and to keep it big, is by means of traveling organizers. Out in Iowa, as we reported last month, the membership of the State Association has been increased from 400 to 1200 through a county organization system, supplemented by the earnest efforts of a paid organizer (a woman, by the way) whose whole time has been devoted to the task for a year or more. Two or three other State Associations have practiced the same methods with success.

Such work, however, must apparently be kept up indefatigably. In Ohio, for instance, where the membership had grown in 1911 up to the surprising figure of 1481, interest began to slump as soon as the organizer resigned from his task, and at the recent annual meeting it was found that reports from the county organizations were far too infrequent in number and much too indifferent in character. The last organization campaign cost $1786, and only brought in $1522, but even at that it was to be considered a success since it added greatly to the strength of the body.—*Bulletin of Pharmacy.*

# Section on Education and Legislation

Papers Presented at the Sixtieth Annual Convention

## THE RELATION OF DRUG STANDARIZATION TO PHARMACEUTICAL EDUCATION AND LEGISLATION.

F. E. STEWART, PH, G., M. D.

My attention was first called to the unsatisfactory condition of the materia medica supply business in 1880. Having at that time introduced rectal gelatin suppository capsules and desiccated blood, and contributed papers describing them to medical and pharmaceutical journals, I was brought in contact with the so-called new remedy business. When these products were placed on the market by a large manufacturing house and my literature distributed to the profession, I was warned by my prominent medical friends of the dangers of "commercialism." I found that if their opinions were correct such a thing as a profession of pharmacy supported by materia medica commerce would be impossible. As a graduate of the Philadelphia College of Pharmacy I was not willing to accept their opinion, and therefore took up the question of the relation of pharmacy to medicine in self-defense.

During the thirty years that have since elapsed I have made the subject one of continual study and investigation. As chairman of committees of the American Pharmaceutical Association, pharmaceutical author, editor, and teacher, physician and social worker, and expert for large pharmaceutical manufacturing houses, I have enjoyed unusual privileges and experiences of a most practical nature. The facts that I shall present in this paper are therefore not based on idealist theories but consists of the expression of thoughts and opinions gained by continuous personal contact with the difficulties which we are all striving to overcome.

In spite of what has been done in the past, we still find today a wide-spread protest against the existing methods of carrying on and increasing the drug business. Remedial legislation is being sought by associations, societies and individuals who have the interests of humanity at heart and who are determined that the public health shall not be exploited for the benefit of individual greed, or in condoning individual inefficiency or ignorance.

A noted political economist and professor in one of our eastern universities, who is chairman of an important committee in charge of a bill now before Congress having as its object the regulation of matters affecting the public health, in

answer to my question why he considered the drug business a menace to the health of the nation, advanced the following argument:

"Social workers throughout the country are engaged in an organized campaign to stamp out tuberculosis. One of the obstacles in the way of the campaign is the drug business. Druggists and manufacturers are engaged in pushing cough medicines and consumption cures. People suffering with incipient phthisis purchase these remedies because they are advertised and recommended for coughs which are, in many instances, symptoms of tuberculosis. While they are engaged in combatting a symptom with medicines which from the very nature of the disease cannot reach the cause, valuable time is lost, and the patients, capable of cure if properly treated in the beginning, become incurable because of this delay. Our campaign is one of education and legislation to remove the causes of consumption and to institute methods of proper sanitation and treatment—treatment in which drugs have little or no part. It is admitted by physicians expert in treating tuberculosis that drugs are for the most part worse than useless in combatting this disease. In this campaign we are opposed by manufacturers and dealers in drugs who care more for money than for human life. I assured this gentleman that thousands of people in the drug business are thoroughly in harmony with social workers in their campaign against tuberculosis and equally opposed to indiscriminate drugging. Yet we are all familiar with cases of incipient phthisis treated by druggists with cough remedies and there is enough of this malpractice going on to justify the criticism.

A Washington official engaged in promoting national legislation for regulating the sale of narcotic and habit-forming drugs, expressed in a recent conversation similar views regarding the attitude of the drug business toward legislation against drug abuses. He stated that certain powerful drug interests employ lawyers of ability as lobbyists who spend their time at Washington and at the state capitals skillfully opposing such legislation.

These lobbyists claim to represent the entire drug trade of the country; and, as the national and state pharmaceutical associations do not repudiate the claim, it is not surprising that those who are promoting bills for the protection of the public health are under the impression that the drug business as such is opposed to all legislation in any way affecting its commercial interests.

Those of us who attended the annual meeting of the Pennsylvania Pharmaceutical Association this year will remember the bitter opposition against the proposed pharmacy bill. Chairman Wallace, the champion of the bill, deserves the thanks of all lovers of true pharmacy for his successful efforts in its behalf. The debate lasted most of the day and far into the night and the friends of the bill won by a vote of 40 to 30.

It must be admitted that there are many persons in the drug business who are opposed to all laws which restrict the sale of drugs except such as are devised to give them a monopoly. They think existing restrictions very unfair and view with alarm bills now before Congress containing further restrictions. These bills seem to them very radical, but when one considers the decision of the Supreme Court of the United States in the case of Worden vs. California Fig Syrup Co. (No. 35, October term, 1902), it will be found that in the opinion of the highest legal

tribunal in the land restrictions should be imposed far more stringent than any prepared in the bills referred to. I particularly attended to the following paragraph in the decision:

"Most, if not all, the States of the Union have enactments forbidding and making penal the practice of medicine by persons who have not gone through a course of appropriate study and obtained a license from a board of examiners; and there is similar legislation in respect to pharmacists. And it would seem to be inconsistent to defeat such salutory laws, if medical preparations, often and usually containing powerful and poisonous drugs, are permitted to be widely advertised and sold to all who are willing to purchase. Laws might properly be passed limiting and controlling such traffic by restraining retail dealers from selling such medicinal preparations, except when prescribed by regular medical practitioners."

What would be the effect of such additional legislation as suggested in this opinion? It would place the practice of medicine and pharmacy under the joint control of the medical and pharmaceutical professions, where it properly belongs; it would put an end to lying medical advertising without a special bill for the purpose; it would limit the evils of self-medication and place the question of domestic medicine on a professional basis; it would put an end to the "Great American Fraud" and raise pharmacy to its proper place as a branch of medical practice.

The object for which the pharmaceutical profession is supposed to exist is to cooperate with the medical profession in standardizing the materia medica and in rendering it fit for the use of physicians in treating the sick, but it is not the function of the pharmacist to prescribe or recommend medicine.

This fact is recognized in the chapter of the medical code of ethics dealing with the duties of the profession to the public: Section 4. "By legitimate patronage, physicians should recognize and promote the profession of pharmacy; but any pharmacist, unless he is qualified as a physician, who assumes to prescribe for the sick, should be denied such countenance and support. Moreover, whenever a druggist or pharmacist dispenses deteriorated or adulterated drugs, or substitutes one remedy for another designated in a prescription, he thereby forfeits all claims to the favorable consideration of the public and physicians."

If pharmacy is thus to become practically part of the medical profession, it is important for the pharmacist to consider and practice the professional ideals of medicine.

Medicine is one of the liberal professions. In defining what is meant by a liberal profession, the British Medical Journal for April 6, 1912, says: "Why have divinity, law and physics been for so many centuries grouped together as 'liberal professions' in contradistinction to other associations? Doubtless in the first place, because for admission to them it is necessary to have been initiated to some extent in the study of what are called the liberal arts; one cannot, as it were, become evolved into a clergyman, a lawyer or a medical practitioner by the simple process of apprenticeship. But there is a further common stamp which marks off members of the professions from commercial pursuits of whatever kind; they are each bound by self-imposed laws, generally accepted, although they may be unwritten, by which their practice is regulated. That is what constitutes the bond of union, which Bishop Boyd Carpenter * * * called the freemasonry of the three great professions. They all place professional honor above

the struggle to acquire wealth, which is the aim of commerce, and they place on their members in their professional dealings restrictions which have no place in trade. The needs of mankind are considered fair subjects of exploitation by commerce; a 'corner' in some commodity, even if it be a necessary of life, is considered a clever stroke of business."

According to the code of medical ethics, a profession has for its prime object the service it can render humanity; reward or financial gain should be a subordinate consideration. In choosing the medical profession, an individual assumes an obligation to conduct himself in accord with its ideals.

There can be little doubt that both the pharmaceutical and medical professions could elevate themselves in the opinion of the general public by a strict adherence to ethical dealings, and that to their financial and social advantage. With the lack of suitable legislation and the failure to enforce laws already in existence, the pharmaceutical profession has developed an alarming tendency to degenerate into the commercial business of nostrum vending and quack doctoring in which the expert pharmacist is far excelled by the better storekeeper and skillful impostor.

A study of conditions as they are discloses anything but an ideal, or even sensible state of affairs.

First, we have public self-diagnosis and treatment, which includes purchases of standard drugs from the druggist for this purpose without a physician's prescription.

Second, we have self-diagnosis by means of instructions contained in patent medicine advertisements and self-treatment by the patent medicine which recommends itself to the judgment of the individual who has made his own diagnosis.

Third, we have diagnosis by the druggist and treatment by means of standard drugs, his own mixtures, or patent medicines.

Fourth, we have continued public self-medication by means of repeated filling of doctors' prescriptions.

Fifth, we have substitutes or use of deteriorated drugs by the pharmacist in compounding physicians' prescriptions.

The methods for combatting this condition lies in (1) the education of the public; (2) the restoration of the professions of medicine and pharmacy to their proper dignity and place, and (3) the standardization of the entire materia medica.

What is drug standardization?

"Drug standardization consists in fixing a nomenclature for drugs and preparations; it consists of determining methods for insuring uniformity in composition and physiological action and therapeutic effects; it consists in adjusting finished products to fixed standards and keeping them there for a sufficient length of time to permit their proper application as therapeutic agents; it consists in reducing this knowledge to law and embodying it in system and then teaching it in medical and pharmaceutical colleges, universities and journals."

Cooperation between the medical and pharmaceutical profession is necessary to do this work of standardization. Once in ten years the representatives of the two professions assemble in congress at Washington and appoint a committee to

do the work. The assembly is known as the United States Pharmaceutical Convention, and the committee is called the Committee of Revision.

Before the advent of the Pure Food and Drugs Act of June 30, 1906, compliance with the standards of the U. S. Pharmacopoeia was purely voluntary. This legislation made the Pharmacopoeia the "law of the land" so far as interstate commerce is concerned. Most of the states have followed the National Government in this legislation for the establishment of standards, and as a result pharmacy is assuming an importance never before attained in this country.

I do not believe that either of the professions realize what a weapon of offense and defense they possess in drug standardization in the warfare against pretense and error.

Take, for example, the results that might be accomplished by adopting a plan for the proper classification and standardization of every alleged new remedy as soon as introduced.

The first step in standardization consists in fixing a nomenclature for the new materia medica product under consideration. At the present time this is fixed by the commercial introducer, who gives the product a name, registers the name as a trade-mark, and claims it as his personal property, thus creating a system of monopoly.

The medical and pharmaceutical professions are not called upon to endorse any such system of monopoly. It is contrary to ethics and a violation of the best traditions of the profession handed down from the time of Hippocrates.

The remedy is very simple and is already being applied by the medical and pharmaceutical text-books. It consists in giving each new product a generic name and using the so-called trade-name as a synonym. By what law can the introducer of a new product prevent the medical and pharmaceutical professions and manufacturers generally from adopting this plan?

The second step in standardization consists in fixing tests for identity, character, quality and strength. This ought to be the function of the central government at Washington, under the Pure Food and Drugs Act.

The third and final step consists in ascertaining the true therapeutic value of the product. Therapeutic verdicts require the cooperative work of experts in chemistry, pharmacy, pharmaco-dynamics, and therapy-dynamics as well as clinicians. The drug must be prepared in suitable forms—this requires experts in pharmacy. It must be examined by chemists to verify the claims made for chemical composition. Chemists and experts in pharmaco-dynamics are required for its chemical and pharmacodynamic standardization. Chemical, physiological and pathological knowledge is required for the study of its effects on healthy and diseased tissues. If a new plant is undergoing examination, the services of experts in pharmacognosy are also required.

To aid the clinician in carrying on the work of investigation, convenience requires that the knowledge thus evolved shall be properly classified and sent to physicians engaged in hospital and private practice, in the form of Working Bulletins. I suggested the Working Bulletin System in 1881. By this plan it becomes the function of all concerned to report the results of observations and verifications in the medical and pharmaceutical journals. After passing the cen-

sorship of the press, the information thus obtained is collected, classified, and published in subsequent editions of the bulletins.

These bulletins, when collected and bound, would furnish very comprehensive literature concerning the new products submitted to this collective investigation.

Therapeutic standardization of the newer materia medica by means of the Working Bulletin System thus promotes progress in the science of the materia medica and in the useful arts upon which that science is dependent.

It is evident that such a system of drug standardization applied promptly to each new materia medical product introduced to commerce would soon put an end to imposition, nostrum production and monopoly. It is also evident that it is not safe for physicians to freely use new materia medica products introduced by advertising unless they are first submitted to impartial tests by competent observers.

I first advocated a national bureau at Washington, and an investigation of the materia medica of the world under governmental auspices. This plan was favored by the Smithsonian Institute and the medical departments of the Army, Navy and Marine Hospital Service, also the American Medical Association, but opposed by powerful commercial interests. Then I advocated a national bureau of materia medica. This was endorsed by the Journal of the American Medical Association. Shortly afterward I took part in organizing the National Bureau of Medicines and Foods and the National Pharmacy Company to support it. This plan received extensive professional endorsement.

A plan was suggested to reorganize the bureau under the joint control of the American Medical Association and the American Pharmaceutical Association, and the joint committee reported favorably, but again commercial interests interfered. Then the Council on Pharmacy and Chemistry was organized, and adopted part of the plan.

The Council did not see fit to make use of the Working Bulletin System, but it has been taken up by the scientific departments of manufacturing houses, with the approval of the profession.

While an ardent admirer of the work of the Council, I still believe that the working bulletin system, carried on by the Council, or by a strong board of control, working in cooperation with the Council, or by a government bureau, such, for example, as the Bureau of Hygiene, would prove a valuable addition to the means by which the profession is enabled to obtain therapeutic results.

Summary: Progress in materia medica science is dependent upon materia medica standardization by the cooperative work of the medical and pharmaceutical professions. As the result of that work, we already have the pharmacopoeia and scientific literature relating to materia medica, pharmacy, and drug therapeutics.

Progress in drug standardization is dependent upon the researches and discoveries of persons engaged in the practice of the pharmacologic arts, viz., pharmacognosy, or the art of identifying and selecting drugs; pharmacy, or the art of preparing, preserving, compounding and dispensing; pharmacodynamics, or the art of determining their effects on healthy tissues and of applying the knowledge to the standardization of drugs by physiologic testing; and therapydynamics, or the art of determining the effects of drugs on diseased tissues and applying drugs as medicines in the treatment of the sick.

The only way in which new materia medica products can be standardized and properly introduced to science is by the cooperative investigation and researches of many chemists, pharmacists, pharmacologists and clinicians, working under different conditions of environment, in all parts of the world, comparing and verifying each other's observations, impartially discussing results, classifying and publishing the same in the forms of science, and teaching this knowledge to the medical and pharmaceutical professions so that it may be freely used for humanitarian purposes. This work cannot be successfully accomplished under a system of commercial monopoly by secret processes, product patents, or commercially controlled names.

The knowledge of drugs, to be classed as a science, must be reduced to law, embodied in system, and protected by a stable nomenclature. The name of that science, advocated by the author of this paper since 1881, should be Pharmacology. This name is now so recognized by the National Committee representing the boards and colleges of pharmacy in its pharmaceutical syllabus.

The professions of medicine and pharmacy are mutually dependent, and both are the servants of the public. The public demands that the physician shall take care of the sick, and the pharmacist supply the medicine for that purpose. Unfortunately for the peace and harmony that should be maintained between the two professions, the public also demands the privilege of self-diagnosis and self-treatment, and the pharmaceutical profession is expected by the self-medicating public to supply the medicine for that purpose. Consequently, there has always been more or less friction between the two professions, and always will be, until both are willing to consider this question of domestic practice in a rational manner and come to a dignified compromise.

While the two professions have been fighting between themselves like the dogs of the fable, the nostrum manufacturers have improved the opportunity to run away with the bone.

It is the duty of these professions to free the materia medica from commercial control. It is their duty to unite for the standardization of the entire materia medica. The public has intrusted this work to their hands, yet they have not only neglected their duty in this regard, but have become recalcitrant. The parable of the talents applies to the situation. Beware lest the fate of the servant who hid his talent in the earth overtake us for this neglect and repugnance.

This is by no means an idle threat. Political economists, sociologists, philanthropists, sanitarians and others have become cognizant of the situation and are closing in their ranks for stronger organization. They are behind the bills in Congress, and sooner or later legislation will be effected for the protection of the public. Shall we, as professions, take part in guiding and shaping this legislation, so that it may accomplish its purpose speedily and harmoniously? Or shall we sit back complacently and permit outsiders to do the work that we ought to do, to our lasting shame and disgrace?

# Section on Practical Pharmacy and Dispensing

Papers Presented at the Sixtieth Annual Convention

## SOME SLIGHT CHANGES WHICH LEAD TO PERFECTION.

S. K. SASS.

Many pharmacists, if unsuccessful in their first attempt to make some preparation according to the formula in one of the official books, will freely and unfavorably criticize the book, the constructor of the formula, or the Committee of Revision.

A little thought about the perplexing formula, patience and some experimental work with the expenditure of little money are the only things necessary to find out that the formula in most cases is good or nearly so.

We must remember that we do not all work under the same conditions—that atmospheric and climatic changes play an important role in some cases—that the change of seasons acts as another joker.

*Aromatic Elixir.* Using Magnesium Carbonate in place of Purified Talc gives better results. 5 gm. is sufficient to prepare 1000 cc. of perfectly clear elixir.

*Elixir of the Phosphates of Iron, Quinine and Strychnine.* This important elixir is not as difficult to prepare as it at first appears. If prepared as suggested by Mr. Dunn, with a slight change in the directions a most satisfactory preparation which will keep for a long time is obtained. The formula and directions in the Pharmacopoea should be changed to read as follows:

| | |
|---|---|
| Soluble Ferric Phosphate | 17.500 gm. |
| Quinine | 8.750 gm. |
| Strychnine | 0.275 gm. |
| Phosphoric Acid | 2.000 cc. |
| Ammonium Carbonate | 5.000 gm. |
| Alcohol | 60.000 cc. |
| Acetic Acid | 16.000 cc. |
| Distilled Water | |
| Aromatic Elixir each, a sufficient quantity | |
| To make | 1000 cc. |

Dissolve the Quinine and Strychnine in the Alcohol, then add the Phosphoric Acid and *three hundred and fifty cubic centimeters* of Aromatic Elixir. Add the Acetic Acid to the Ammonium Carbonate, contained in a suitable vessel, and when solution is complete add enough Distilled Water to make the product measure *fifty cubic centimeters.* Mix the solution of Ammonium Acetate with the solution of the alkaloids and add enough Aromatic Elixir to make the liquid measure *eight hundred and eighty cubic* centimeters. Dissolve the Ferric Phosphate in *fifty cubic centimeters* of Distilled Water and add enough Aromatic

Elixir to make the product measure *one hundred and twenty cubic centimeters.* Finally mix the two solutions and filter.

*Note*: If precipitate will appear, agitate until dissolved. Keep in a bottle covered with dark paper and well corked. This preparation will slightly darken with age, but its efficiency is not affected.

*Syrup of Hypophosphites.* When made adhering strictly to the formula and directions of the U. S. P. this preparation is a failure. It will not keep for any length of time. When finished it is not of the U. S. P. strength, as some of the hypophosphites are precipitated and left in the filter.

After some experimentation I came to the conclusion that a little change in the formula, which does not affect the active principles is necessary. Therefore I suggest the following as entirely satisfactory:

| | | |
|---|---|---|
| Calcium Hypophosphite | 45 | gm. |
| Potassium Hypophosphite | 15 | gm. |
| Sodium Hypophosphite | 15 | gm. |
| Diluted Hypophosphorous Acid | 2 | gm. |
| Sugar | 640 | gm. |
| Lactic Acid | 1.25 | gm. |
| Water, a sufficient quantity To make | 1000 | cc. |

Dissolve the Hypophosphites in *four hundred and fifty cubic centimeters* of Water, add the Diluted Hypophorphorous Acid the Lactic Acid and the Sugar, which dissolve by agitation, and add enough water to make the product measure *one thousand cubic centimeters.* Filter and keep in a glass container, well corked.

*Compound Syrup of Hypophosphites.* The U. S. P. formula requires an increase in the amount of sugar called for and a rearrangement of the directions. If these corrections are made, a most satisfactory preparation will result.

The formula and directions are as follows:

| | | |
|---|---|---|
| Calcium Hypophosphite | 35.000 | gm. |
| Potassium Hypophosphite | 17.500 | gm. |
| Sodium Hypophosphite | 17.500 | gm. |
| Ferric Hypophosphite | 2.250 | gm. |
| Manganese Hypophosphite | 2.250 | gm. |
| Quinine | 1.100 | gm. |
| Strychnine | 0.115 | gm. |
| Sodium Citrate | 3.750 | gm. |
| Diluted Hypophosphorous Acid | 15.000 | cc. |
| Sugar | 815.000 | gm. |
| Water, a sufficient quantity To make | 1000 | cc. |

Dissolve the Calcium Potassium and Sodium Hypophosphites in *three hundred and seventy-five cubic centimeters* of water, to which *five cubic centimeters* of Diluted Hypophosphorus Acid has been previously added. Dissolve the Quinine and Strychnine in *thirty cubic centimeters* of Water, to which *ten cubic centimeters* of Diluted Hypophosphorous Acid has been previously added. Rub the Ferric and Manganese Hypophosphites with the Sodium Citrate, add *thirty cubic centimeters* of Water and warm the mixture on a water-bath, stirring continuously until the salts are dissolved and a clear greenish solution is obtained. Mix the three solutions in the order named. Dissolve the sugar by the aid of a water-bath, stirring continuously. As soon as the sugar is dissolved remove the

syrup from the water-bath and filter. Finally add enough water through the filter to make the product measure *one thousand cubic centimeters.*

*Note*: Keep in a bottle covered with dark colored paper and well corked. In the northern latitudes, and during the cold season in same sections, the sugar may be reduced to 805 or 810 grms.

In conclusion I will say, that to be successful in preparing this and many other preparations, only the best and purest materials obtainable should be used. We can not expect good results from cheap, inferior materials. Consider as a guiding principle in your work the fact that there is nothing too good for the sick, that whatever is not good enough for your loving wife, your dearest child, and your father or mother—is not good enough for any one else. We should be conscious of the duty we owe to humanity, we should keep in mind that we are only the servants of the suffering, and as such should serve them rightly—with a sincere and honest consideration for their welfare.

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## SOME DISPENSING HINTS.

FRANKLIN M. APPLE, PHAR. D.

In the course of my routine duties I have encountered repeated difficulties, the solution of which has caused me considerable worry and thought, and I herewith offer the result of some of these efforts, hoping that they may prove to be of some benefit to some of my fellow workers.

In prescriptions calling for camphor and menthol or phenol and camphor to be dissolved in albolene or similar bland, oily liquids, I have followed the practice of placing the solids, in a fairly fine state of comminution, in the glass container in which they are to be dispensed with a small portion of the solvent, then carefully heating over an alcohol lamp, with gentle agitation, until dissolved, to which is added the balance of the solvent. By this means the trouble of washing out a mortar is obviated and no loss of medicaments results.

Anyone who has had any experience with methylene blue remembers what an annoying chemical it is, for it has the habit of depositing small particles thereof upon everybody and everything when triturating it with other remedial agents. By using the *small crytal* form of this chemical and moistening it so as to prevent its becoming light enough to float about in the air, we have had no difficulty in handling it without annoyance. As it is usually prescribed in combination with fixed oils, the latter can be used to moisten the chemical whilst reducing it to a finer state of comminution—preferably in a glass mortar, which can readily be cleansed.

When filling a prescripion calling for soft capsules, containing oils, it is very annoying (and at times exasperating) to find one or more of the capsules imperfectly sealed, due generally to a small portion of the oil coming in contact with the sealing lip of the capsule. We have adopted the practice of wiping off carefully the tops of the capsules with pellets of cotton moistened with chloroform, using

care to not have too much chloroform upon the pellets and have never experienced any unsatisfactorily sealed capsules since following this custom.

When dispensing prescriptions calling for Pulv. Opii or Pulv. Ext. Opii, it is wise to bear in mind the fact that diluted alcohol is the menstrum used in manufacturing the soluble preparations thereof. Far more sightly products will result if this fact be remembered.

There is one shelf bottle that is commonly found in drug stores that should be taken out and destroyed without delay, viz., that intended for cod liver oil, which is filled and refilled until it renders first-class oil unfit for use, the cause for which is well known to every experienced pharmacist. We make it a custom to bottle our cod liver oil in empty containers, not holding over one pint, thoroughly cleansed and perfectly dry. One of these filled bottles serves as a shelf bottle until it is emptied, when it is thrown away and another filled one takes its place. Thus we always have a fresh bottle open—and the rank smelling container is eliminated (or, better stated, prevented). By this plan we find a good use for some bottles that previously had contained products of questionable therapeutic value.

Our hypodermic tablet case has proven of great value to us when weighing our small portions of potent drugs—giving us, conveniently, a degree of accuracy that is difficult to get in weighing the drugs themselves.

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## A PURE AD. LAW.

A Pure Ad. Law is not only a possibility, but among the probabilities of the near future. The success of that section of the Food and Drugs Act which relates to honest labels and advertisements has awakened possibilities in other lines of advertising. The National Federation of Retailers is hard at work molding public sentiment. The Associated Advertising Clubs of America freely state that many men in the advertising business recognize the need of such a law and are in favor of legislation which will ensure advertisements that tell the truth, the whole truth and nothing but the truth. It has been pointed out that such a law will bring about fair competition between the big mail order firms who do business at a distance from the customers and the home merchant who must show the goods that he sells.—*Meyer Bros. Druggist.*

# Section on Commercial Interests

**Papers Presented at the Sixtieth Annual Convention**

## THE PERSONAL ELEMENT IN ADVERTISING.

JOHN R. THOMPSON, PITTSBURGH, PA.

A member of your Commercial Section asked me to write a paper for his section. I told him I would if he would assign me a subject.

This he promptly did, and it was something about advertising. "Can the retail drug store compete with big stores in the advertising field" I think was his suggestion. I pondered the subject for many days. One day the answer was "Yes," but the next day it would be "No" just as emphatically; so I finally gave it up, and came to the conclusion that the right answer was twins.

The answer is yes, because some retail druggists compete very successfully with the big stores in the advertising field, and the answer is no because many druggists have tried this sort of competition and failed to make good.

For a druggist located in the suburb of a city to use the daily papers is, of course, out of the question for he would be compelled to publish his advertisements in a circulation that covers a large community and he could hope to effect only a small proportion of this community. If he is located where a majority of the readers may conveniently reach him, then there is no reason why he could not successfully bid for the business.

The druggist in a small town or in a local neighborhood cannot employ the same methods, either in advertising or conducting his business, as do the large stores, any more than the owner of one or two tenement houses may supply light and heat and janitor service as offered by the large apartment house owner. The methods of the large store are not the methods of the small one, but there are many good ways of advertising a small store that may be just as successful in proportion as those used by the large competitors.

It is up to the druggist to find out how he can advertise. I tried many methods before I finally struck my gait, and the plan I used might not work out under other circumstances. I published circulars describing my specialties in more or less glowing language; I got out price lists and talks on prescriptions. Sometimes my friends would tell me my efforts were good advertising, but I never could see that they produced results in the way of more business. After several years of effort in the field I one day wrote an ad. for my little four-page store paper, which opened up like this: "This little paper is sent out to tell the people about my drug store." That was the only inspiration I think I ever had. It wasn't much but I used it for all it was worth. Here is the way I reasoned to myself, now folks will say, "You say you are going to tell us about your drug store, now go to it." And I did go to it. I began to use the personal pronoun, and talked in my advertise-

ments just as I talked to people over my counter. There is nothing in the world more interesting than personal experience. People would rather hear you talk about yourself than anything else—if you tell the truth. They will read your advertisements about your business—your business—not the drug business in glittering generality—but your business—if you give it to them straight and tell the truth. From the time I began to really and truly "tell about my drug store" I could count results in cash. There are thousands of interesting things about the goods in a drug store, and the story of the druggist himself when told on the printed page or by word of mouth will be absorbed with avidity, provided always that it is the druggist's own story.

There was a book published recently by Mary Antin called "The Promised Land." The book contains no romance, no history, no tragedy. It is the simple story of Mary Antin and it is all true. You will read every line of it and read lots of it twice, simply because it is the true story of a human being. Put yourself into your ads. and they will bring results; the more you tell about yourself the more people will like you.

Every druggist can advertise. Not necessarily like some other fellow does it. He must do some experimental work and find out where he is strong. It may be window displays. There is surely room at the top in that field. It may be at the soda fountain. There are plenty of chances for improving soda fountain drinks and methods. It may be in the keeping of a neat store, and here, too, there is much chance for betterment.

It may be in the publishing of a small periodical, as in my own case. My paper never contained any article that will be quoted in the Encyclopedia; it was not a brilliant example of grammatical excellence; but it was a good advertisement for my drug store because it was ME from begining to end, and I was a good druggist, that point, of course, was always kept to the fore. I was no better, understand, than many others right around me, but I got more business than they did because I kept telling the people what a good druggist I was.

Many druggists say they cannot write an ad. Any druggist can write a better ad. himself than any one else can write for him.

Put this in your pipe and smoke it—if you have a drug store that is worth patronizing you CAN tell the people around you about it if you want to—and want to hard enough.

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## CAPITALIZING INDIVIDUALITY.

HUGH CRAIG, NEW YORK.

Individuality, like the artistic temperament, manifests itself in a wondrous variety of forms. But, unlike the other, individuality is common to all of us. True, it has been subdued in many by that tendency toward unity, cooperation, mass plays, so marked in the social economy of the present day. On the other hand, it has been cultivated by those who have turned to specialization, recognizing that

while united effort increases the margin of safety, it lessens the margin of efficiency.

"In union there is strength." "Too many cooks spoil the broth." There is an ancient saw for any purpose: "You pays your money, and you takes your choice." Yes; in union there *is* strength, but it is strength most woefully wasted, without the direction of a leader strong in individuality. In union there is strength; in individuality there is power. The difference is that of the cog in the ponderous machine and the little motor that turns the wheels. The cog and its fellow-cogs, turning in their fixed circumference, perform the one task for which they are designed; the possibilities of the little motor are as numerous as those of Aladdin's lamp.

Remains then the recognition of the possibilities of individuality to the pharmacist. Let me point out a few. Suppose we start with externals.

About half a mile below town, just where the brier-edged lane touches the bend of the creek, stands a group of silver birches. Many of our customers have oftimes noticed them; not a few have paused in admiration. Have we ever thought how well adapted is that picture for use on the labels of a special line of toilet preparations; what a stamp of individuality it would give?

Down at the old Planters' Hotel there presides over the kitchen one of those rare super-chefs, a real ol' mammy cook. What an individual mark of superiority her photograph on package of spice or bottle of flavoring extract!

And that intimate mark of individuality, our signature, how many of us use it on our prescription labels? How many of the packages that leave our stores bear this mark of personal endorsement? It should be on bottle, box and label.

Each of us endeavors to get some distinctiveness in his prescription bottles. It is possible and profitable to get more. And in this we can learn from the French makers of high-grade perfumes and cosmetics. Instead of picking out a design from A, B, Co.'s sample book and having it blown in the bottle, let us select a neat, distinctive, unlettered container and have the porter or apprentice mark each with fluoride "ink," using a rubber-stamp facsimile of our personally written name and address.

Why should we continue to use mussy sealing wax or unhygienically to lick stickers for atop our corks? The boy in his spare moments can burn on each a facsimile monogram, the die for which costs but a trifle. Everybody is *not* doing this.

It is not enough that these marks of individuality be distinctive alone; they must be marks of superiority. The perfumes and toilet specialties must be as pleasing as is the picture of the birches on the label. The spices and flavorings must be as satisfactory as ol' mammy's jumbles. The contents of the signed prescription bottle must be as good as the check which bears the same signature.

Throughout the store personality should be everywhere manifest. Individuality, but not freakishness, should stamp fixtures, cases, placards and arrangement. Upon the regular customer and upon the casual visitor there should be but one impression: that of the personality of the proprietor, not that of the sole agent for green-label nostrums, not that of the distributor of any ready-made wares. The "tub" of the retail pharmacy should "stand on its own bottom."

When we come to advertising, we enter individuality's most fertile field. But we must be careful of the tillage, for individuality of expression, unrestrained, sometimes works havoc immeasurable. Not all of us are advertising experts—for which we should be most grateful—but all of us know our wares well enough to tell their merits in our own way to those who are prospective purchasers—and the high-sounding phrases of the ad-writer are no weightier argument. So let us put the same personality into our advertisements that characterize our conversation with a customer, or our letters. And let us sign each advertisement in facsimile in attestation of the verity of the statements made therein.

Into a thousand other ramifications might I trace the beneficent influence of individualized pharmacy, custom pharmacy, we might say. But on the violet-scented cream and powder for milady who affects the violet atmosphere, on the rose-odored specialties for the rose lover, on the personal interest in the researches of Doctor Studious, on the gentle introduction of the subject of their hobbies into the routine conversations with customers, and on the hundreds of other ways in which the personality of the pharmacist may be manifested in his practice, I shall but thus lightly touch. My message is this: Cultivate individuality, and capitalize it; stamp your personality upon every thing that pertains to your practice of pharmacy, and charge for it; meet the cut prices of the ready-made article with a custom-made, individualized article, a better article, at an advanced price; in your chosen vocation, as in your personal conduct, ape not the multitude, be yourself.

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## ANALYSIS BY MEANS OF CYSTALLOGRAPHY.

Dr. A. E. H. Tutton, writing in the "Daily Mail" for September 13, states that the researches of Professor E. S. von Fedorow, of St. Petersburg, have extended the periodic law to crystallography, the slight differences of the interfacial angles of crystals following the order of progression of the atomic weights of the interchangeable elements in insomorphous series. Barlow in England and Fedorow in Russia conceived the internal structure of crystals as of a space lattice character, and have received "most marvelous confirmation" from the work of Professors Roentgen and von Groth in Munich, who have utilized the exceedingly short wave length of the Roentgen rays to provide definite evidence by diffraction photographs of the cubic lattice in crystalls of zinc blende. This means that the molecules in the crystal and their arrangement have been visible. Professor von Fedorow has experimentally determined the "form symbols" of 10,000 substances. This enables a few measurements with a goniometer, followed by some simple calculations, to enable identity of an unknown crystal to be established, and it is claimed, thus rendering chemical analysis "superfluous."—*The Chemist and Druggist.*

# Section on Historical Pharmacy

Papers Presented at the Sixtieth Annual Convention

## THE EVOLUTION OF LAWS REGULATING THE SALE AND USE OF POISONS.

M. I. WILBERT, WASHINGTON, D. C.

The pharmacy laws of the several states are so intimately associated with and so generally include restrictions on the sale of poisons that it is not infrequently supposed that the connection has always existed and that restrictions on the sale and use of poisons had their origin in the laws designed to regulate the practice of pharmacy.

Poisons have, from the very earliest periods of time, been considered with apprehension and awe and many attempts have been made to prevent or at least to discourage their use for improper or for criminal purposes. During the colonial period laws relating to poisons appear to have been confined to prohibiting the use of poisonous substances for criminal purposes. The nature of this earlier legislation is well illustrated by the following paragraph from the Colonial Laws of Massachusetts, "The Body of Liberties of 1641"; "If any person shall slay another through guile, either by poysoning or other such divelish practice, he shall be put to death. Ex. 21:14."

Even after the organization of the United States it was not until the third decade of the nineteenth century that any attempt was made to safeguard purchasers of poisonous substances by requiring a label calling attention to the dangerous character of the substance.

The first of these state laws may be found in the Revised Statutes of the State of New York (1829, Sec. 22) and reads: "No person is allowed to sell arsenic, prussic acid or any other substance or liquid usually denominated poisonous, without endorsing on it the word "Poison" in a conspicuous manner."

Two decades later (1848) New Hampshire enacted a law which required a record of the sale of arsenic, corrosive sublimate or prussic acid and several years later (1850) nux vomica and strychnine were added to this list.

In 1852, Ohio adopted a law designed to regulate the sale of poisons which required both a record of sale and a poison label and in October of the same year, at the organization meeting of the American Pharmaceutical Association, the "Standing Committee," appointed at the preliminary meeting the year before, presented a resolution which reads in part as follows: "The indiscriminate sale of poisons by druggists and apothecaries, is a serious evil in the United States as at present conducted. Any views which may originate in the Convention,

tending to abate this evil, would no doubt have some influence if circulated by its authority."

In accordance with the spirit of the resolution the members of the American Pharmaceutical Association undertook to compile and record the nature of the existing laws designed to restrict or safeguard the use of poisons and otherwise to control the trade in drugs and medicines.

At the meeting of the American Pharmaceutical Association in 1853 the Committee on the Sale of Poisons reported that the members "have been engaged since the time of their appointment in endeavoring to collect information relating to the subject * * * yet they have been but partially successful." The committee then reports at length on the requirements as they existed in some of the European countries and reprints the answers that were received to inquiries regarding existing legislation in this country. (Proc. A. Ph. A. 1853. p. 10.)

In this connection it may be interesting to note that so far as known the first law to regulate the practice of pharmacy in this country was enacted by the legislature of the State of New York in 1839 and was entitled: "An act to regulate the preparation and dispensing of medicines in the City of New York." This law required that persons to practice pharmacy in the City of New York must have obtained the diploma of the College of Pharmacy of the City of New York or some other regularly constituted college of Pharmacy or Medicine or have passed an examination of the censors of the Medical Society of one of the counties of the state.

Some 10 years later the State of Georgia enacted a law which required that a person to open or keep a drug or apothecary store must first obtain a license therefore from the medical board of his own school. Alabama, in 1861, passed a similar law but all these laws, so far as known, were inoperative because of the unwillingness of the medical societies involved to enforce them.

It is perhaps not generally known that the present type of pharmacy law, which includes the restrictions on the sale of poisons was first proposed by a special committee of the American Pharmaceutical Association appointed at the meeting held in the City of New York in 1867.

Under the able direction of the chairman, the late John M. Maisch, this committee, like one of its predecessors, made extensive inquiries regarding the legislation then in force. This report is presented in full in the Proceedings for 1868 (pp. 329-379) and in the Proceedings for the following year (v. 17, pp. 51-60) the committee presents and discusses the draft of a proposed law to regulate the practice of pharmacy and the sale of poisons.

This early draft is too comprehensive to discuss in detail in a brief review of the subject and it will suffice to say that the essential features of the proposed law are embodied in practically every one of the so-called pharmacy laws now on the statute books of the several states.

The first of the states to adopt the principles of this draft was Rhode Island (Laws 1870, Chap. 856.) In a number if not all of the state legislatures opposition appears to have developed on the part of representatives of the country districts and by far the greater number of the laws enacted during the remaining years of the decade from 1870 to 1880 were restricted to the regulation of

pharmacy in the larger cities. In the Proceedings of the American Pharmaceutical Association for 1872 (v. 20, pp. 150-161) the committee presents the laws adopted by the several state legislatures for the cities of New York, Philadelphia, Baltimore and San Francisco.

The Proceedings for 1873 (v. 21, pp. 506-508) contains a copy of the law passed in Ohio for cities of the first class, and the Missouri law, for the City of St. Louis, is presented in full in the Proceedings for 1874 (pp. 333-337) accompanied by a state law for Kentucky. During the remaining years of this decade five additional states adopted laws regulating the practice of pharmacy and during the decade from 1880 to 1890 no less than 25 states enacted laws of this type.

So far as known the Crimes Act of Pennsylvania (Laws 1860, No. 374) was the first American law to recognize the toxic and generally harmful character of morphine and the anticocaine law of Illinois (Laws 1897, p. 138) was the direct forerunner of our present day antinarcotic laws which, as now in force generally follow the suggestions laid down in the "Draft of an Antinarcotic Law" presented by James H. Beal at the meeting of the American Pharmaceutical Association at Mackinac Island, in 1903.

The history of the evolution of laws designed to regulate the practice of pharmacy and to restrict the sale and use of poisons is reflected in detail in the several volumes of the Proceedings of the American Pharmaceutical Association and the object of the present review is merely to call attention to the sequence of the development and to emphasize the important part taken by the members of the American Pharmaceutical Association, through the Committees and Sections of that Association in safeguarding the best interests of the public by suggesting and endorsing legislation designed to restrict the promiscuous sale of poisonous and habit forming drugs.

While the laws now in force are far from perfect and while much remains to be done before the distribution and use of harmful and poisonous materials can be said to be adequately safeguarded" our thanks, and the thanks of the community at large are due to the pioneers in the field who fought so valiantly for the recognition of pharmacy as a calling destined to take an important part in protecting the health and the lives of American people.

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## HISTORY OF KUMMERFELD'S LOTION.

OTTO RAUBENHEIMER, BROOKLYN, N. Y.

Among the sadly neglected studies is history of pharmacy and quite especially the history of drugs and galenicals. The writer, an enthusiast on this subject, cannot conceive how a pharmacist can truly love his profession without some little knowledge of its history, and he therefore advocates that such knowledge should be instilled into the student in his college course.

The notes which the author has collected on pharmaceutical history are quite numerous. The history of Kummerfeld's lotion has been selected as the topic for

this paper, not because it is such an important preparation, but for the following two reasons:

1. None of the American or English books, which the writer is acquainted with, give its formula and therefore Aqua Cosmetica Kummerfeldi was made No. 1 of the "Pharmaceutical Formulas" for the proposed "Recipe Book" in Journal A. Ph. A., February, 1912.

2. Its history serves as a good example of the evolution of a simple formula into a more complex one.

Madame Kummerfeld (whether Miss or Mrs. is unknown to the author) was an actress living in Weimar during the time of the celebrated German poet Johann Wolfgang von Goethe (1749-1832). I find that Helene Böhlan, the author, mentions Madame Kummerfeld in her writings. "Weimarer Ratsmädel" and "Andere Geschichten." "Die Kummerfelden," as the actress was commonly called, was in the habit of having a recipe compounded at the Weimar Apotheke, containing Precipitated Sulphur, Borax and Rose Water, which she used as a cosmetic lotion. In those days as well as in the present days, toilet articles, etc., used or endorsed by actresses naturally became famous, as is well illustrated in the use of henna by Madame Adeline Patti. Consequently Kummerfeld's Waschwasser came into use in Germany and the formula was modified to suit the need or fancy of the patient, or prescriber or dispenser. According to a communication of Dr. Maaz of Grossrudestadt in Pharmazeutische Zeitung, 1912, p. 76, another, very likely later, modification of Aqua Cosmetica Kummerfeldi is as follows:

| | |
|---|---|
| Precipitated Sulphur | 7.5 gm. |
| Lime Water | 150. gm. |
| Sulphurated Potassa | 0.6 gm. |

I find that the borax in the original formula as well as the liver of sulphur in Dr. Maaz's formula have been omitted from the recipes in use at the present time and that camphor and glycerin have been added. The lime water is still retained in some of the formulas. The addition of camphor undoubtedly has the object of acting as a cooling, antiseptic, bleaching and antipruritic agent. The addition of glycerin has the object of preventing the lotion from drying too quickly and also to help to suspend the solids.

Some of the formulas, f. i. of the Dresden, the Saxon and the Hessian Apothecaries, and those in "Hager" and "Dieterich" contain also two per cent. of acacia, which in the writer's opinion is a decided advantage, being used to emulsify the camphor. That the formula for Kummerfeld's Waschwasser is important on the Continent can be seen from being official in the Netherlands Pharmacopoeia and in the Ergänzungsbuch (supplement to German Pharmacopoeia). Inasmuch as it is also frequently prescribed in the United States, especially by dermatologists, and as none of the American books seem to publish the formula, and as the writer, who acts as a pharmaceutic information bureau around Greater New York and vicinity, has been asked for this formula on numerous occasions, he has therefore published same in the department of Pharmaceutical Formulas in the Journal A. Ph. A., February, 1912, p. 169.

In order to familiarize the pharmacists and others with the origin of this

preparation this paper was written. For convenience and in order to make the formula better known, I again repeat it:

AQUA COSMETICA KUMMERFELDI.

Kummerfeld's Lotion or Cosmetic Water.

| | |
|---|---|
| Camphor | 10 gm. |
| Acacia, in fine powder | 20 gm. |
| Glycerin | 50 gm. |
| Precipitated Sulphur | 100 gm. |
| Rose Water | 820 gm. |
| To make | 1000 gm. |

Triturate the finely powdered Camphor with the Acacia and the Precipitated Sulphur, then add the Glycerin and gradually the Rose Water, triturating constantly so as to obtain a homogeneous lotion.

*Shake well before dispensing.*

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## THE CUT-RATE ROUTE.

Although price cutting is not confined at all to the drug trade, still the merchants who perhaps have gone the farthest in this kind of work and have given the cutter the most wide-spread advertising are the cut-rate druggists. This is doubtless because they have had the ignorance of the public upon which to trade. They have taken advantage of the fact that the druggist has long been heralded as a robber-profit man. They have been willing to admit and even claim this in order to exploit their position as the money savers of the community. Whether this attitude is a fair one, whether it is a loyal position to take or not, we are not disposed to say. But this much we think: the cut-rate route to a mercantile success is not a short cut by any means. While some cutters have succeeded, it has been largely due to the fact that they were shrewd merchants and good advertisers rather than to the mere fact that they lopped off the profits from certain lines of goods. We believe that if the case of every cutter were to be carefully analyzed we would find that had that man followed his same live publicity means and had he done as much good work in the way of displaying goods and helping to make them self-selling, and at the same time kept his prices up to the normal level of his town, he would have succeeded to a greater extent. He would have developed practically as much business, and he would have done it all on a profit-paying basis. He would not have found it necessary to pare salaries down so closely or to work so hard to sell certain lines on which his profit still existed. The cut-rate route is not the route to getting rich quick, and in most instances it has not proved the route to getting rich at all.—*The Spatula.*

# Contributed and Selected

## NOTES ON CHEMICAL TESTS OF THE UNITED STATES PHARMACOPOEIA.

CARL E. SMITH.

(Continued from page 538.)

CHRYSAROBINUM.—As medicinal Chrysarobinum is not the individual chemical substance so named by its discoverer, but a mixture of a number, neither a chemical formula, exact solubility constants, nor a definite melting point can consistently be stipulated, as is done in the U. S. P. The color is usually darker than "pale" orange-yellow. Market products are not "entirely consumed" on ignition, but the ash should not exceed 0.25 per cent., the limit set by leading foreign pharmacopoeias. A limited number of specimens examined during the past 3 years, however, mostly yielded less than 0.1 per cent. In the identity test with fuming nitric acid and ammonia the color produced is violet-red rather than violet. The same applies to the lime water test. A test needed, not provided in the U. S. P. is one for the detection of chrysophanic acid. About 0.1 gm. of the sample is boiled with 20 cc. of water; the liquid, after filtration, should be neutral to litmus paper and should not be colored otherwise than pale yellow by a drop of ferric chloride test solution. This test is directed by several pharmacopoeias.

CINCHONIDINÆ SULPHAS.—As the melting point is affected by the presence of small variable quantities of other cinchona alkaloids, it has little value as a test of identity or of purity. The salt should not leave more than 0.1 per cent. of ash. The sulphuric acid test for readily carbonizable matter should be made with about 0.1 gm. of the salt and about 2 cc. of the acid. The results of the test for fluorescing alkaloids depends considerably on the the volume of solution examined; it should not exceed 100 cc., otherwise the test will be too severe.

CINCHONINÆ SULPHAS.—In the requirement regarding solubility in chloroform "80 parts" are to be regarded as volume parts, i. e., 8 cc., not gm., should apply to this salt test.

COCAINA.—The melting point of the U. S. P. is one given by some authorities as that of the chemically pure alkaloid. Some variation should be allowed for the medicinal product, probably 96° to 98°. The ash should not exceed 0.05 per cent.

COCAINÆ HYDROCHLORIDUM.—The melting point varies so much in different hands, by reason of partial decomposition, that determination of it as a test of purity, or even of identity, is apt to lead to misinterpretation. It is better omitted from the official tests, as the others are sufficient for establishing identity and purity. The statement that the salt "is not colored by cold sulphuric acid" applies only when the proportion of the former is rather small; a mixture of 0.1 gm. of it

with 1 cc. of the acid should not show other than a slight yellowish color. The wording of the permanganate test for cinnamyl-cocaine is somewhat ambiguous and has lead to differences in interpretation. If it was intended that the violet color should remain entirely unchanged in half an hour, the test is too stringent; if it was intended that the violet tint should not disappear entirely within that time-limit, then it is somewhat too lenient. Most of the products now on the market do not completely decolorize 0.1 cc. of n/10 permanganate under the conditions of test. For the sake of uniformity MacLagan's ammonia test is better made with 0.2 cc. of ammonia water, measured with a 1 cc. pipette, instead of 4 drops. The precipitate should form within 5 minutes, but with sufficiently vigorous stirring usually appears in a considerably shorter time. The supernatant liquid, however, is not "perfectly clear," but holds in suspension for some time minute crystals of cocaine, which interfere with its transparency, but do not give it a milky or opalescent appearance.

CODEINA.—Because of decomposition at temperatures below that given as the melting point, determination of this is valueless. To prepare a 1 per cent. solution of codeine for the ferricyanide test for morphine, acidulated water or alcohol should be used, as the alkaloid is not sufficiently soluble in cold water.

CODEINÆ PHOSPHAS.—This salt effloresces rapidly at ordinary temperatures, losing all except $\frac{1}{2}$ molecule of its crystal-water. This makes it difficult to prepare it with fully 2 molecules of water (8.3 per cent.) Products of different makers, recently examined, contained $1\frac{1}{2}$ to $1\frac{3}{4}$ molecules, with the exception of a crystalline, uneffloresced salt, which contained only $\frac{1}{2}$ molecule. In view of this and in the interest of more uniform dosage, adoption by the U. S. P. of a salt containing not more than $\frac{1}{2}$ molecule of water would seem advisable, as this is evidently the most stable form.

COLCHICINA.—The term "leaflets" in the description may lead to the inference that the alkaloid is crystalline, which is not the case. An unofficial crystalline colchicine, containing choloroform of crystallization, however, is on the market. "Amorphous scales" would seem to be a better descriptive term than "leaflets." Choloroform is an impurity of which no account is taken in the U. S. P., but which is stated to be present sometimes in large quantities. The following test has been found in this laboratory to be satisfactory for detection of excessive quantities: A mixture of not more than 0.01 gm. of colchicine, 2 cc. of potassium hydroxide solution (5 p. c.) and a drop of aniline, heated to about 100° in a test-tube, should not develop an odor of phenyl isocyanide. Colchicine is officially described as "having an odor suggesting damp hay," but is now readily obtainable free from odor, as it should be.

COLLODIUM.—The U. S. P. gives neither descriptions nor tests, which are important to those who do not make this solution themselves. In a layer of 30 mm. it should not appear more than slightly yellowish nor more than slightly opalescent. Exposed to the air in a thin layer, it should leave a transparent, tenaceous film. When collodion is stirred with an equal volume of water, a viscid, stringy mass separates; this mixture should be neutral to litmus paper. On the basis of a number of specimens examined it is recommended to adjust the limits of specific gravity to 0.765 to 0.775 at 25° and the pyroxylin contents to 5.0 to 5.25 per cent., by weight, which corresponds to about 4 gm. in 100 cc. of solution at

25°. The pyroxylin is best determined by the following, slightly modified method of the German Pharmacopoeia: About 5 gm. of the collodion are weighed in a shallow, stoppered, flat-bottomed weighing-jar. About an equal quantity of water is then added, drop by drop, with stirring to divide the precipitate into separate clots. The mixture is dried to a constant weigh at 100° to 110° and the residue weighed after cooling in a desiccator. This residue should burn rapidly with a yellow flame and it should not contain more than traces of substances soluble in either water, alcohol, or "absolute ether."

CREOSOTUM.—This product, because of its naturally variable composition, frequently fails to conform to some of the U. S. P. specifications, although of high grade. This applies particularly to the statements that a solution of 140 parts of water is not perfectly clear and that a solution of 120 parts of hot water becomes turbid on cooling, the latter being given as a test of distinction from, and absence of, "coal-tar creosote." A considerable number of specimens, in which no admixture with coal-tar distillates was detected by reliable tests, disolved clear in 140 parts of cold water and their solutions in 120 parts of hot water remained clear when cooled to about 25°. These statements, therefore, should be omitted at the next revision. There is an inaccuracy also in the statement, given as a means of distinction, that water-solutions of coal-tar creosote yield white precipitates with bromine water. Coal-tar distillates in which phenol and o-cresol predominate, may yield bulky, white or yellowish precipitates, but those consisting mainly of the higher boiling cresols and xylenols give compact yellow to brown precipitates. The specific gravities of creosote recorded during several years past have mostly been within narrow limits, namely 1.078 to 1.080 at 25°. The extreme variations were 1.075 to 1.087, a sample giving the latter figure containing an unusually large proportion, about 45 per cent., of guaiacol. As pointed out recently by J. W. England, the specification that "most of it" distils between 200° and 220° is too indefinite. A requirement that not less than 80 per cent. should distil within this range is quite feasible, as 85 to 95 per cent. of distillate is frequently obtained from market products within these limits. The requirements of the French Pharmacopoeia, in this respect, are probably too restricting. They are as follows: It should begin to distil a little above 200°; about one-fourth should distil between 203° and 209°; about one-half between 209° and 215°; the remainder below 225°.

CRESOL.—The composition of market products is very variable. Only a minor portion of a large number examined came within a reasonable interpretation of the U. S. P. requirements. Specific gravities ranged between 1.0255 and 1.0465 at 25°. Those having specific gravities above 1.038 contained more or less phenol and usually dissolved clear in less than 60 parts of cold water, while those free from Phenol invariably contained substances insoluble in water. Some samples gave on distillation but small fractions between 195° and 205°, instead of the required minimum of 90 per cent. Such products, of course, contain but little *m*-cresol, which is at present considered to have the highest disinfecting power, or of *p*-cresol, which is considered to be next in value. As regards the specific gravity, it may be said that this is not important as a criterion, since the composition is ascertained with greater certainty by fractional distillation and by solubility tests, but if it is to be retained, a wider range should be given, of perhaps

1.032 to 1.038, as has been proposed by H. V. Farr. The present limits exclude some products rich in the most valuable constituents.

CUPRI SULPHAS.—The limit test for iron, which is the most common impurity, is inconsistently stringent for a substance required to be only 99.5 per cent. pure. Presence of iron must also be considered in the choice of a method for the determination of copper. Volumetric determination by the well known cuprous iodide method gives statisfactory results. As the U. S. P. requires percentages to be calculated on the basis of the fully hydrated salt free from adhering moisture, it should be remembered that granular or powdered products are likely to be somewhat efflorsced, while crystals usually contain enclosed mother liquors, although superficially dry.

ELATERINUM.—It is not certain that a physiologically active substance of definite chemical composition has as yet been isolated from Elaterium, as a different chemical formula has been assigned to elaterin by each of four investigators. It is certain that the preparation sold as elaterin is far from uniform in composition, as it has been reported to vary greatly in efficiency. For these reasons the Pharmacopoeia cannot, as it now does, give consistently either a chemical formula, molecular weight, melting point, or quantitative solubility statements. An identity reaction given in recent reference books, which is rather more characteristic than those in the U. S. P., consists in dissolving about 0.01 gm. of elaterin in about 5 cc. of melted phenol, then adding a few drops of sulphuric acid. The solution at once becomes crimson and changes quickly to scarlet. Because of the scant chemical knowledge of elaterin, only physiological means of standardization can be considered reliable.

FERRI CHLORIDUM.—According to the official method of preparation 10 parts of solution of ferric chloride, U. S. P., should yield 4 parts of product, containing theoretically 25 per cent. of iron. In practice, a larger yield of a product containing correspondingly less iron is obtained, as the solution, when evaporated to the concentration directed, must absorb water from the air before it can form a firm, crystalline mass. Made on a manufacturing scale, the salt contains 20 to 22 per cent. of iron, but the upper figure is not often reached. The generally accepted formula for this salt, $Fe_2Cl_6 . 12H_2O$, corresponds to 20.7 per cent. of iron. It is therefore apparent that the present requirement of not less than 22 per cent. in the "dry" salt, which presumably means that allowance is to be made for water in excess $6H_2O$, is not tenable. It seems advisable to return to the specification of the U. S. P. of 1890 that it contain not less than 20 per cent. of iron.

FERRI ET AMMONII TARTRAS.—For the determination of iron it is directed to take the "dry" salt. It seems reasonable to interpret this as meaning "having a dry appearance," but it is also possible to interpret this as meaning a salt free from water of hydration. As most scale preparations of iron contain considerable quantities of the latter, difference in interpretation may cause marked differences in results of assays.

FERRI ET POTASSII TARTRAS.—In the first line of the last paragraph "dry" evidently means "of dry appearance." The quantity of hydrochloric acid should be increased to 5 cc., to prevent precipitation of potassium bitaratrate.

FERRI ET QUININAE CITRAS.—In the quinine determination there is no good reason for directing spontaneous evaporation of the chloroform. It may just as

well be evaporated on a water-bath, with considerable saving of time. At it is difficult to remove chloroform completely at moderate temperatures from amorphous alkaloids, the quinine, after evaporation of the chloroform, should be dissolved in alcohol or ether, the solvent evaporated, and then the residue dried to a constant weight at 100°.

FERRI ET STRYCHNINÆ CITRAS.—Spontaneous evaporation of chloroform in the assay for strychnine causes unnecessary loss of time, but when an elevated temperature is employed, it should be low enough at the end to prevent loss of strychnine through spattering.

FERRI PHOSPHAS SOLUBILIS.—The identity tests are in need of revision, as they fail to show definitely the composition of the preparation.

FERRI PYROPHOSPHAS SOLUBILIS.—The identity tests do not differentiate this from the preceding preparation, which could be substituted for it without detection by the U. S. P. tests. Molybdate solution may be used as a means of distinction, but it should be remembered that a small amount of orthophosphate may be legitimately present in the pyrophosphate, being formed during the manufacture, also that in contact with the reagent pyrophosphate soon changes to orthophosphate.

FERRI SULPHAS EXSICCATUS.—Not "completely" soluble in water in the sense of making a clear solution, but a 5 per cent solution should not be more than slightly turbid when made with oxygen-free water. The U. S. P. does not explicitly state how much ferrous sulphate the exsiccated salt should contain. Prepared by the official directions it contains theoretically not less than 99 per cent of $FeSO_4$, $1\frac{1}{2}$ $H_2O$, but allowance must be made for absorption of moisture during exposure to the air while the dried salt is powdered, transferred to containers, etc. A fair requirement would be that tiration with permanganate should show it to contain not less than 95 per cent of $FeSO_4$, $1\frac{1}{2}$ $H_2O$.

FERRUM REDUCTUM.—Much of the "iron by hydrogen" of the market has the appearance of being some other form, possibly high grade wrought iron. Such products are in rather coarse powder, but are still "very fine," as that term is defined in the U. S. P. They also have an unmistakable, though not pronounced metallic lustre, while the U. S. P. specifies a very fine, lustreless powder. They usually meet all the chemical requirements of the U. S. P. and have a tendency to test higher in metallic iron than those products which conform more closely to the physical characteristics given for "reduced iron" in the various pharmacopœias, including the U. S. P. The superficial physical differences between these doubtful products and such as are undoubtedly made by reduction with hydrogen are sufficiently slight to be overlooked by many and to cause differences of opinion as to whether or not a given specimen conform to the letter of the present U. S. P. specification. It should be noted, in this connection, that the official definition of "reduced iron" fails to specify any particular method of reduction, so that any powdered iron conforming to the description and standing the tests for purity and strength will be admissable. If it can be shown that reduction by means of hydrogen yields a product therapeutically superior to those obtained by other means, then the definition should clearly state that this method only should be used and tests should be devised to distinguish products so made from others. The present

assay method is adapted only to iron in extremely fine powder and has been found even less satisfactory than the mercuric chloride method of the U. S. P. of 1890. This latter method, however, in its present improved form, is the most reliable known at this time. In Treadwell and Hall's Quantitative Analysis it is given as follows: "About 0.5 gm. of ferrum reductum, in the form of a fine powder, is placed in a 100 cc. graduated flask, from which the air is replaced by $CO_2$, 3 grms. of solid mercuric chloride are added and 50 cc. of water. The contents of the flask are then heated to boiling, by means of a small flame, and the liquid boiled for a minute. The flask is then filled up to the mark with boiled water. After cooling to 15° the solution is again carefully brought to the mark, well shaken, and then allowed to stand in the stoppered flask until the precipitate has settled. The liquid is then poured through a dry filter and the filtrate caught in a flask filled with carbon dioxide. Of this filtrate 20 cc. are taken, acidified with 20 cc. of sulphuric acid (1:4), treated with 10 cc. of manganese sulphate solution (1 liter contains 67 gm. of Mn $SO_4+4H_2O$, 138 cc. of phosphoric acid, sp. gr. 1.7, and 130 cc. of sulphuric acid, sp. gr. 1.82) diluted to 200 cc. and titrated with tenth-normal permanganate solution." For all except extremely fine powders the boiling should be extended to at least five minutes.

GLYCERINUM.—While perfectly pure glycerin may be entirely "colorless and odorless," this characterization, in the U. S. P., of the best article furnished to the drug trade, is not strictly accurate, but the best grades appear colorless when viewed crosswise in a colorless glass tube 30 mm. in diameter. In large bulk they are more or less yellowish; a bluish or greenish tint would indicate the presence of coloring matter, added to mask a yellow tint. The German Pharmacopœia requires, as a test for substances added to improve the appearance, that a mixture of 5 cc. each of glycerin and diluted sulphuric acid (16 p. c.) should not become yellow when boiled. Even the best commercial grades have a faint, fat-like odor, noticeable in the cold only when a considerable bulk is examined. J. M. Starkie has pointed out that the U. S. P. specific gravity is too low for glycerin of 95 per cent. and should be changed to 1.249 at 25°. The official test with Fehling's solution for sugars and that with sulphuric acid for "readily carbonizable impurities have been criticized by glycerin manufacturers as apt to mislead. In the experience of this laboratory, however, these tests are satisfactory when properly made. A very slight deposit of cuprous oxide should be disregarded, as this frequently forms after some hours when no sugars are present, but is caused by traces of other reducing substances. With glycerin containing enough sugar to make adulteration worth while, a decided precipitation would take place almost at once. The official test for butyric acid, which is in reality a test for esters of volatile fat acids in general, has been found too severe. Tests of this kind are being replaced by leading pharmacopoeias and other authorities with limit tests, such as the following: A mixture of 50 gm. of glycerin, 25 cc. of n/10 potassium hydroxide, and 25 cc. of water, boiled for 5 minutes, then cooled, should not require less than 20 cc. of n/10 acid for neutralization, with phenolphthalein as indicator.

GOSSYPIUM PURIFICATUM.—The U. S. P. specifications require revision in several particulars. Those of some other pharmacopoeias are in some respects more

definite or more exacting. In this connection some of the requirements of these other authorities are of interest, as follows: It must be uniformly soft, i. e., free from lumps or hard flakes (German, Netherlands, Swiss, Japanese, Austrian). It must contain only slight traces of chlorides, sulphates, or calcium salts (Germ., Neth., Swiss, Jap., Aust., Belg.). Of an extract prepared with boiling water (1 in 10), 10 cc. are mixed, after cooling, with 3 drops of a 0.1 per cent. solution of potassium permanganate and a few drops of diluted sulphuric acid. The mixture should not be entirely decolorized in 5 minutes (Germ.). Similar test (Swiss, Jap., Aust., Belg.). The fibers should be at least 3 cm. long (Neth.); 3 cm. long in greater part (Swiss). Absence of foreign fibers by microscopical examination (Swiss). An extract prepared with boiling water (1 in 10) should not become colored in 5 minutes if mixed with potassium iodide solution and starch paste (Neth.). Limit of moisture, 5 per cent. (Neth.); 7 per cent. (Swiss). A water-extract (1 in 10) should not be opalescent, soapy, or colored (Swiss). Limit of ether-soluble matter (fat), 0.2 per cent. (Neth.); 0.6 per cent. (Swiss). If the statement of J. Thomann, that presence of more than 0.15 per cent. of fat prevents cotton from sinking readily in cold water, can be verified, a special test for a limit of ether-soluble matter will be superfluous.

GUAIACOL.—As this substance acquires a color on exposure to light and air, it cannot be expected to be "colorless" after having been kept for some time, but it should not appear more than slightly yellowish in a stratum of 2 cm. The official melting and boiling points are those given by some authorities for chemically pure guaiacol and are not applicable to the medicinal article. As the permitted variation in specific gravity implies allowance of some impurities, corresponding variations in the melting range, approximately 27° to30°, and in the boiling range, approximately 203° to 206°, should also be allowed. Market products often exceed these limits. In the application of the potassium hydroxide test a "nearly white" mass is seldom obtained. With most specimens tested it was more or less gray, varying with the intensity and duration of heat applied. It is probable that this test, if narrowly interpreted, would cause rejection of many excellent products. Samples failing to stand the official test for "oily hydrocarbons" are sometimes met with; two of recent date yielded liquid residues consisting of brown globules, which were partically insoluble in water, but readily soluble in acidulated water, therefore probably not hydrocarbons, but of a basic nature.

GUAIACOLIS CARBONAS.—The melting points given in the U. S. P. differ considerably from those given in most other pharmacopoeias, which also differ much among themselves. Statements of the melting point of the pure substance in chemical literature are also at variance with each other. As a determination of this constant constitutes a most important test for the detection of excess quantities of other creosote compounds, greater certainty on this point is desirable. Determinations made in this laboratory indicate that chemically pure guaiacol carbonate melts at about 86° to 86.5°, when heated at a rate not exceeding 0.5° per minute in a capillary tube. These results were obtained with a commercial specimen that was recrystallized from alcohol and from benzene until there was no further change in melting point. In view of these results and the quality of the available market products, it is recommended that the present U. S. P. limits,

84° to 87°, be retained. In addition to the official tests, the following, taken from other pharmacopoeias, may be aids for ascertaining the quality of this substance: A saturated solution in alcohol should be neutral to litmus paper that has been moistened with water. A solution of 0.1 gm. in 2 cc. of sulphuric acid should be colorless or not more than slightly yellow. Not more than 0.1 per cent. of residue should remain on incineration.

HEXAMETHYLENAMINA.—The U. S. P. gives no tests for impurities. The following have been adapted from the more recently published works to the purest products of the American market: It should volatilize, when heated, without leaving more than 0.05 per cent. of residue. A water-solution (1 in 50) should not become colored or turbid when mixed with an equal volume of hydrogen sulphide solution (heavy metals). Other portions of the water-solution, acidulated with nitric acid, should give no reaction with barium chloride for sulphates and not more than a slight reaction with silver nitrate for chlorides. No color or turbidity should be produced, if 100 cc. of a water-solution (1 in 20) be heated to boiling with 0.5 cc. of Nessler's reagent (ammonium salts or paraformaldehyde).

HOMATROPINÆ HYDROBROMIDUM.—Owing to partial decomposition of the salt at the melting temperature, the melting points obtained with the same sample by different analysts are likely to vary considerably. This is also indicated by variations in the figures given in the literature, namely 209° to 216°. The rigid figures of the U. S. P., 213.8°, should therefore be replaced by flexible limits, with the understanding that the melting point is not to be considered a test of purity. Attempts to separate small quantities of the free alkaloid in a form suitable for determination of its melting point, have so far been unsuccessful, either by the official directions or other means; on evaporation of the solvent a semisolid amorphous residue was always obtained, which did not solidify on standing.

HYDRARGYRI CHLORIDUM CORROSIVUM.—The official test for "many foreign salts" is undesirable as well as superfluous, as these impurities are determined more conveniently and accurately by their insolubility in alcohol and by their remaining as a residue when the salt is volatilized by heat. The salt should not contain more than 0.1 per cent. of non-volatile matter. The test for arsenic is unnecessarily elaborate and time consuming, if the uses of the salt be considered. The simpler test of the U. S. P. of 1890 answers every practical purpose, if a test is considered necessary. Of 12 other pharmacopoeias examined not one gives a test for arsenic. For an assay, precipitation and weighing of the mercury as sulphide is doubtless the most satisfactory of the methods requiring no special apparatus and is generally considered more trustworthy than the various volumetric methods so far proposed. The convenience and accuracy of electrolylic determinations of mercury is well known. However, as a routine test, a quantitative determination of mercury is hardly required, as the percentage of mercuric chloride can be indirectly determined from the quantity of alcohol-insoluble matter, which includes all of the usual impurities this salt contains.

HYDRARGYRI CHLORIDUM MITE.—Although required to be only 99.5 per cent. pure, this salt almost always contains less than 0.1 per cent. of impurities. However, the acetic acid test for ammoniated mercury is too stringent for any of the

wellknown brands of calomel in this market, but all products, to be acceptable, should stand the following: If 0.5 gm. of the salt be heated in a test tube with 10 cc. of potassium hydroxide test solution, the vapors should not be alkaline to litmus paper. The tests for "foreign salts" and "foreign metals" are advantageously replaced with volatilization of about 2 gm. of the salt in a porcelain crucible, when not more than 0.05 per cent. of residue should remain. As any specimen that stands the official tests, or nearly so, cannot well fail to contain the required minimum percentage of mercurous chloride, a quantitative determination of mercury should usually be unnecessary. The volumetric methods so far published cannot be considered as accurate as the well-known gravimetric methods, but results accurate within 0.3 to 0.5 per cent. may be obtained by Hempel's method, slightly changed as follows: 50 cc. of n/10 iodine are added to 0.8 to 1 gm. of the sample, contained in a glass-stoppered flask of 250 to 300 cc. capacity. When the salt is moistened throughout, a solution of 2 gm. of potassium iodide in a few cc. of water is added and the mixture *at once* briskly shaken in the stoppered flask until solution of the mercury compound is complete. The excess of iodine is then titrated with n/10 sodium thiosulphate, with starch solution as indicator. each cc. of n/10 iodine (O=16) consumed corresponds to 0.02361 gm. of HgCl.

HYDRARGYRI IODIDUM FLAVUM.—The official tests fail to provide for calomel as an impurity and adulterant. Excessive quantities of it are perhaps most conveniently detected by a determination of the mercury, which should range between 60.9 and 61.5 per cent. in a salt of U. S. P. standard. Hempel's method, as above described, is applicable.

HYDRARGYRI IODIDUM RUBRUM.—The required minimum of 98.5 per cent. of $Hg I_2$ is unnecessarily low, as the impurities in a carefully made salt should not exceed 0.1 or 0.2 per cent. Complete solubility in alcohol should be an additional requirement, to exclude calomel and red mercuric sulphide. With this addition, the U. S. P. tests are sufficient to establish the purity of this salt without quantitative determinations of mercury and iodine.

HYDRARGYRI OXIDUM FLAVUM.—In making the test with oxalic acid it is important that the oxide be quite free from small lumps, as these are not readily converted into the white oxalate. The test is, however, fallacious in this respect, that red mercuric oxide can be powdered so fine that its color will not only be the same as that of precipitated mercuric oxide, but that it will also be readily changed to oxalate under the conditions of the test. The mercury in mercuric oxides is determined accurately and quickly by titration in nitric acid solution with sulphocyanate, the procedure being the same as with silver determinations according to Volhard's method. Each cc. of n/10 sulphocyanate (O=16) corresponds to 0.01083 gm. of Hg O. In presence of more than traces of chlorides the method is not exact.

HYDRARGYRI OXIDUM RUBRUM.—This product should be required to contain not more than 0.1 per cent. of non-volatile matter. The official test for "absence" of nitrate is not delicate enough to detect traces, nor is it practicable to make this product free from nitrate, but it should stand the test as now given.

HYDRARGYRUM.—More stress should be laid on complete solubility in nitric

acid, as a test for tin and antimony, and on the residue after volatilization, in connection with which "no appreciable residue" should be defined. Purified mercury of the market contains 0.02 to 0.05 per cent. of non-volatile matter.

HYDRARGYRUM AMMONIATUM.—It is not "wholly" volatilized by heat, but the residue should not exceed 0.05 per cent. Solution of the compound in diluted hydrochloric acid, precipitation and weighing of the mercury as sulphide has been found a satisfactory method of assay.

HYDRARGYRUM CUM CRETA.—The test for mercurous oxide should be made with the same proportions of materials as are directed in the test for mercuric oxide. A requirement of not less than 37 and not more than 39 per cent. of mercury should probably be made and a method of assay added. Dissolving in nitric acid, evaporating to dryness on a water-bath with a decided excess of nitric acid, then taking up in acidulated water and precipitating a mercuric sulphide, has been found a satisfactory method.

(To be continued.)

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## THE PRESERVATIVE ACTION OF ESSENTIAL OILS.

J. R. RIPPETOE, P. D. AND L. E. WISE, PH. D.

### INTRODUCTION.

The present status of food preservatives in this country is a peculiar one. The past few years have shown that the addition of benzoate and salicylate of soda to food preparations is frowned upon, even if the chemicals themselves are not — in the opinion of some food experts — of a highly deleterious nature. Nor is the use of inorganic preservatives viewed with much favor. Copper salts, the sulphites, the fluorides, boric acid, all have had their detractors and all of them are gradually leaving the formulae of the manufacturers. Added preservatives of this type may, therefore, be considered (temporarily at least) under the ban.

And yet, foods, beverages and pharmaceutical products which act as culture media for various bacteria and which will permit the growth of mold must of necessity be preserved in order to make them articles of commerce. There is indeed one class of natural products which has for ages past been used perhaps unwittingly by house wives and manufacturers in the preservation of their food stuffs. We have reference to the spices, and especially to cinnamon, mustard and cloves, which, as a recent investigation by Hoffmann and Evans[1] has shown — are highly preservative in their action towards spore forming bacilli and the yeasts. It seems quite reasonable to assume that the preservative nature of these

[1] J. Industrial and Eng. Chemistry, Nov., 1911, 835.

spices may be directly traced to their specific and characteristic constituents, the essential oils, and it is an investigation of the action of these oils that has been set forth in this report.

The antiseptic action of many of the common (and not a few of the less well-known) essential oils has been made the subject of some extended researches,[2] although their preservative action has received little attention in the literature.

In 1895, Weinsche[3] mentioned the fact that menthol, the terpene-alcohol of peppermint, when in a dilution of 1 to 3000 arrested the growth of comma and cholera bacilli.

In 1902, Calvello[4] stated that a 7 to 8 per cent. emulsion of cinnamon oil and an 11 per cent. solution of oil of thyme had the same effect in sterilization as a one per cent. solution of corrosive sublimate, and that oil of cinnamon, in an emulsion carrying 9 per cent. of the oil, effected complete sterilization. Furthermore, the disagreeable, "secondary" effects of mercuric chloride were not apparent.

In 1903, Marx.,[5] continuing the previous work of Konradi examined terpineol, vanillin, heliotropin, and other substances of an aromatic nature, for the same purpose. The development of such pathogenic organisms as the resistant anthrax spores and staphylococci pyogenes aureus were arrested by the substances under investigation. A saponaceous emulsion of terpineol was found to be strongly antiseptic. Marx advanced the theory that the degree of bactericidal action was directly dependent on the oxygen-activating power of the aromatic examined — i. e. the alleged property that these substances have for rendering oxygen more active as a germicide.

The same year R. Kobert[6] in an article on the "Pharmaco—therapeutics of Aethereo-Oleosa. mentioned the anti-microbic properties of essential oils, and stated that the oil of turpentine when exposed to the air, prevented putrifaction, that limonene and methyl salicylate were both disinfectants and that menthol and thymol were of value as antiseptics in dental use.

Heller[7] investigated the toxic effect on plants of the vapor of certain essential oils. He found that in the liquid state or in aqueous solution, these oils were much less potent in their effect. Vandevelde[8] compared the poisonous character of different essential oils and their constiuents by means of plarmolysis, comparing their toxicity with that of ethyl alcohol (taken as 100). He found that

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[2]We wish at this point to state that many of the references to the bactericidal action of the essential oils have been found in the excellent physiological and pharmacological notes of Schimmel's Reports. For the earlier literature much information has been gained from Sternberg's *Text-book of Bacteriology*.

[3]Therapeut. Monatshefte, No. 9.

[4]Pharm. Ztg. 47, 759.

[5]Centralbl. fur Bacteriologie u Parasiten Krankeiten, 33, 1-74.

[6]Schimmel's Report, Oct., 1903.

[7]Thesis. Leipzig, 1903.

[8]Bull. de l' Assoc. Belg des chin 17, 269.

thymol, menthol, cinnamic aldehyde, oils of cassia, cloves, white thyme, cinnamon and red thyme were all more than one hundred times as powerful as the standard; that peppermint, nutmeg, and star anise were more than fifty times as toxic, and that carvone, benzaldehyde, oil of bitter almonds, caraway, terpeneless lemon, neroli, angelica, anise, (anethol) cognac and lemon were all more potent in their action than the alcohol itself.

In 1904, Liebreich[9] reported the germicidal action of oil of mustard. About the same time. Hall[10] published a research on the bactericidal and antiseptic action of the constituents of eucalyptus oils. He stated that cineol was the least active of the eucalyptus components and that aromadendral, piperitone and phellandrene were its most active bodies. B. coli communis was experimented upon. The author claimed that ozonized oils increased the antiseptic value of cineol — and he recommended their use in medicine.

In 1906, K. Kobert[11] and his co-worker Bruning[12] determined the relative antiseptic values of a large number of volatile oils, depending on the inhibitory action of these oils on the hydrogen sulphide generation which normally takes places through the action of bacteria in milk containing finely powdered sulphur. Their articles are well worthy of note, and we do not think it out of place to give a brief resume of their results.

Kobert found that oils of amber, anise, bergamot, calamus, cardamom, cedarwood, celery, copaiba, cubeb, cumin, cypress, erigeron, estragon, fennel, ginger, juniper, savin, turpentine (free from oxygen), valerian, and wintergreen — were all very feeble in their action; that angelica, citronella, geranium, jaborandi, lavender, patchouli, peppermint, peruvian balsam, pinus montana, rue, sandalwood, tansy, thyme, wild thyme and wormwood were feeble; that basil, eucalyptus, linaloe, niobe, orange blossom, palmrosa, pennyroyal, rosemary and sage oils were intermediate; that bay, cajuput, caraway, coriander, dill, double caraway, jasmine, pine needle, spearmint, spoonwort, *ozonized* turpentine, wormwood and ylang ylang oils were strong; and that bitter almond, cassia, cherry laurel, cinnamon, mustard and spike oils were very powerful antiseptics. Of the important constiuents of essential oils, and certain others Kobert found that ethyl alcohol and santalol, citral and heliotropin, muskone and thujone, anethol, apiol, isomyristicin, isosafrol, methyl chavicol and thymol, camphene, phellandrene and the terpenes of dill and rosemary oils all showed *very feeble* antispetic properties; that citronellol, geraniol, safrol, pinene, and the terpenes of bay and citronella oils all showed slight antiseptic value; that carvone, pulegone, menthyl-heptenone, myristicin, terpinene, were moderate bactericides; that furfuric alcohol, linalool, terpineol, fenchone, menthone, eugenol and limonene were strong in their action and that benzyl alcohol, anisic aldehyde, benzaldehyde, cinnamic aldehyde and isoeugenol were very *powerful* as inhibitory agents.

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[9]Ther. Monatshefts 18, 65.

[10]F. D. Chem. Industry XXIII (1904), 1233.

[11]Schimmel's Report, Oct., 1906.

[12]Centrbl. für un Medizin, 27, No. 14.

His work further shows that most esters such as amyl and methyl salicylate, bornyl acetate and valerianate and linalyl acetate are very poor, and that only benzyl acetate and methyl benzoate may be taken as moderate antiseptics. Cymene and cineol may be described as medium in their bactericidel value and $C_{10}H_{16}O_2$— the active principle of wormseed oil (known as "ascaridol"), is very powerful in its action.

There are several interesting differences between the observations of Kobert and those of Bruning. The latter placed bitter almond oil and terpinene among the very weak antiseptics, while the former stated that almond oil, was a very powerful and that terpinene was a mild antiseptic. Less striking differences are also to be noted in oils of turpentine (ozonized and free from ozygen) in dill, pine needle, and coriander oils and in linalool, spoonwort oil and terpineol. These variations may have been due to the bacteria-content of the milk; to change or decomposition of the substance tested or to the doubtful blackening of lead acetate paper. Both investigators noted the weak antiseptic character of the terpenes and both claim that terpeneless oils are useful in medicine.

In 1906, as well, we find the work of Kettenhofen[13] on the destructive influence of ylang-ylang oil on micro-organisms.

In 1907, Bruning[14] published an article on the potent active principle, of chenopodium oil—$C_{10}H_{16}O_2$ K. Kobert [15] also continued his noteworthy researches on the bactericidal value of essential oils — and investigated the differences between terpene and terpeneless oils of the same source. His results show that in general it can be assumed that terpeneless oils are at least as powerful in their action as those containing terpenes, and that in certain cases (such as oils of bergamot and citronella) the terpene free variety were the more powerful antiseptics. He also recorded the fact that the same influence was exerted by various oils on pure cultures, as on the normal milk bacteria, referred to in his former research.

1910 Gilmour[16] studied the relative germicidal values of essential oils used in dental surgery. Oils of cassia, cinnamon, cloves and bay (in the order named) head the list as valuable bactericides. These are followed by peppermint, eucalyptus, thyme and cajuput, while oil of gautheria is mentioned as being of insufficient value for the root canal dressing.

Martindale, [17] that same year published the outcome of a series of examinations of aqueous and saponaceous solutions of oils, compared with that solution phenol which represents the minimum strength necessary to destroy a specific organism. Assuming that *a* was the percentage of carbolic acid solution required for this purpose, that *b* was the percentage of oil required under similar conditions,

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[13]Thesis Boon, 1906.

[14]Deutsche Med. Wochen Schrift, 1907, No. 11; c. f. Thelen Thesis Rostock, 1907.

[15]Pharm. post 40, 627.

[16]Pharm. J. and Pharmacist, May, 1910, 844.

[17]Perfume and Ess. Oil Record, 1, 266.

he termed *a/b* the "phenol coefficient" and established this ratio for a large number of oils. The highest coefficient naturally indicates the highest antiseptic value. The following oils or constituents together with their respective coefficient have been listed:[18]

Origanum (W-25.76), thymol (S-25.29), carvacrol (S-21.32), thymol (W-19.41), thyme oil (S-14.85, W-13.38), geraniol (S-12.29), cinnamon leaf oil (S-9.66), cinnamon bark oil (S-8.91), clove oil (S-8.88), cinnamic aldehyde (S-8.0), citronellol (S-8.11), cinnamon oil (S-7.92, W-7.11), rosemary oil (S-5.94), otto of rose (S-5.94), cassia oil (S-5.35), wintergreen oil (S-4.64), eucalyptus (amygdalina) (S-4.35), lavender oil (Mitcham) (S-4.94), lemon oil (S-3.94), bitter almond oil (S-3.76), eucalyptol (S-3.76), eucalyptus-globulus (S-3.55), sandalwood (S-1.67), birch tar oil (S-1.67), cade oil, less than one.

The results (especially those involving cassia, which is apparently weaker than rosemary, and bitter almond oil which is even less potent than oil of lemon) are not entirely in accord with those of Kobert which have been summarized above.

## OBJECT AND SCOPE OF INVESTIGATION.

The purpose of this report is to present in systematic form the preservation value which may be attached to a number of essential oils used in pharmaceutical practice, largely for flavoring purposes. The efficiency of the oil has been very roughly gauged by its power to arrest the growth of mold in a 50 per cent. glucose solution, (series A) and a 50 per cent. sugar solution containing extract of meat and peptone, (series B) within certain periods of time. All results of this work should be taken qualitatively. We have not undertaken to establish the comparative preservative value of our oils, excepting in a very general way. We have tried to show the inefficiency of certain oils as preservatives, and we have tried to show which oils preserve satisfactorily.

## PROCEDURE.

*Preliminary Examinations of Oils.* The oils, with very few exceptions, were examined physically (gravity, optical rotation etc.) — and whenever possible the characteristic constituents were determined by reliable analytical methods. The appended list is a complete summary of this work. (The chief constituents are taken directly from Parry's Chemistry of Essential Oils and Artificial Perfumes 2nd. Ed.) Further than these, citral, menthol, thymol and terpineol have been included in our experiments.

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[18] W indicates aqueous; S indicates saponaceous solution of the oil.

| Oil | Source | Chief Constituents | S/G 25/25°C | Optical Rotation 25° C | Approximate Percentage of Characteristic Constituents | Other Tests |
|---|---|---|---|---|---|---|
| Almond, Bitter..... | | Benzaldehyde; H C N. | 1.0586 | | 91% Benzaldehyde | |
| Almond, Bitter (no acid) ..... | | Benzaldehyde. | 1.0453 | | 99% Benzaldehyde | |
| Angelica ..... | Schimmel | Phellandrene; methylethylacetic acid; oxypentadecylic acid. | .8607 | +34.9° | | |
| Anise ..... | | Methyl chavicol; anethol; aniseketone; anisic aldehyde and anisic acid. | .9745 | very slightly + | 77% Anethol | Congealed oil melts 16°-17° C.; B.P. (major portion) 225°-235° C. |
| Bergamot ..... | | Linalol; linalyl acetate; limonene; bergaptene. | .8746 | +21.6° | 34.9% {Linalyl Acetate | |
| Betula ..... | | Methyl salicylate. | 1.1817 | ±0° | | B. P. 218°-221° |
| Cajaput ..... | | Cineol; terpineol; terpinylesters; etc. | .9166 | — 1.8° | 68% Cineol | |
| Calamus ..... | Schimmel | Terpenes; sesquiterpene; oxygenated bodies not identified. | .9568 | | | |
| Caraway Seed..... | Metzner & Otto | Limonene; carvone. | .9012 | +78.7° | 54% Carvone | Soluble in 1 part 90% alcohol |
| Cardamom ..... | Schimmel (Ceylon) | Terpineol; dipentene; limonene; cineol; acetic esters. | .9289 | +30.9° | | |
| Cardamom ..... | Prepared in this laboratory from Mangalore Cardamom | | .9348 | +38.5° | | |
| Cassia ..... | | Cinnamic aldehyde; cinnamic acid ester; O-methyl cumaric aldehyde. | 1.0672 | | 75% Cinnamic Aldehyde | |
| Celery ..... | Horner | Limonene; sedanolic acid; sedanolide; sedanonic acid, etc. | .8639 | +76.6° | | |
| Chenopodium ..... | | | .9685 | — 2.7° | | |
| Cinnamon ..... | | Cinnamic aldehyde; eugenol; phellandrene. | 1.0368 | | 83% Cinnamic Aldehyde | |
| Cinnamon ..... | Schimmel | | 1.0209 | — 1.1° | 74.5% Cinnamic Aldehyde | Soluble in 2½ parts 70% alcohol |
| Citronella ..... | | Geraniol; borneol; citronellol; camphene; dipentene; methyl heptenone. | .8979 | —11.1° | Total Geraniol—27.7% Total Citronellol—28.3% | |
| Cloves ..... | | Eugenol; amyl methyl ketone; caryophyllene. | 1.0417 | — 0.4° | 87.5% Eugenol | |
| Coriander ..... | Metzner & Otto | Pinene; linalol. | .8686 | +10.7° | | Soluble in 3½ parts 70% alcohol |
| Coriander ..... | | | .8721 | | | |
| Cubeb (9199)..... | | Dipentene, cadinene, cubeb camphor. | .9192 | —33.5° (?) | | |
| Cubeb (9813)..... | | | .9206 | —25.1° | | |
| Cumin ..... | Schimmel | Cymene; cumic aldehyde. | .9076 | + 2.6° | | |
| Dill ..... | Schimmel | Limonene; carvone; dill apiol. | .9094 | +69.7° | 46% Carvone | |
| Eucalyptus ..... | | Cineol; other const. depending on source. | .9194 | + 1.7° | 72% Cineol | |
| Fennel ..... | | Pinene; phellandrene; dipentene; limonene; fenchone. | .9668 | +18.1° | | |
| Geranium, Rose (Algerian) ..... | Schimmel | | .8927 | — 8.1° | {22.6% Geraniol tiglate {75.2% Geraniol (total) | |

| Oil | Source | Chief Constituents | S/G 25/25°C | Optical Rotation 25° C | Approximate Percentage of Characteristic Constituents | Other Tests |
|---|---|---|---|---|---|---|
| Geranium, Rose | Bertrand | Geraniol citronellol; and tiglic acid esters. | .8976 | + 0.8° | 15.6% Geraniol tiglate<br>48.2% Geraniol (total) | |
| Ginger | Schimmel | Camphene; phellandrene; sesquiterpene. | .8773 | —45.1° | | |
| Hedeoma | | Hedeomol; pulegone. | .9322 | +17.6° | Pulegone 62% | |
| Horsemint | Schimmel | Dextro-limonene; cymene; thymol. | .9206 | | Phenolic bodies 46.8% | |
| Juniper berries | Metzner & Otto | Pinene; cadinene. | .8700 | — 7.8° | | |
| Lavender flowers | Schimmel No. 1 | Linalyl acetate; geraniol; sesquiterpene, pinene; limonene. | .8872 | — 4.4° | 26.8% Linalyl acetate | |
| Lavender flowers | Motlet (French) | | .9092 | — 1.6° | 29.6% Linalyl acetate | |
| Lavender flowers | D. & O. | | .9193 | — 3.1° | 26.9% Linalyl acetate | |
| Lavender flowers | "Mitcham" (English) | Constituents as above and also cineol. | .8983 | — 6.8° | 12% Linalyl acetate | |
| Lemon (9469) | | Citral; citronellol; limonene. | .8524 | +58.7° | 4.25% Citral (average) | |
| Lemongrass | | Citral; citronellol; geraniol; methyl heptonone. | .9112 | | 69% Citral | Not completely soluble in 7 to 8 parts of 70% alcohol |
| Mace | Schimmel | Pinene; myristicin; dipentene; myristical. | .9057 | +20.3° | | |
| Marjoram | Schimmel | | .9017 | +15° | | |
| Mustard (artificial) | Schimmel | Allylisothiocyanate. | 1.0144 | | 100% Allylisothiocyanate | |
| Neroli | | Limonene; linalol; linalyl acetate. | .8790 | +11.6° | 18.7% Linalyl acetate<br>56.1% Linalol | Slight fluoresence in alcohol |
| Nutmeg | Metzner & Otto | Myristicol; terpenes. | .8893 | +21.4° | | Soluble in 1 part 95% alcohol, also in 5 parts 90% alcohol |
| Origanum (Red Imitation) | Schimmel | | .8657 | | 10.5% Phenols | |
| Orange Peel | Messina | Limonene; citral; citronellol. | .8450 | +95.8° | | |
| Pepper (black) | Schimmel | Terpenes; sesquiterpenes. | .9016 | — 1.1° | | |
| Peppermint | | Menthol; menthyl acetate etc. | .9105 | —25.5° | 11.2% Menthyl acetate<br>63.8% Menthol total | |
| Pimenta | | Eugenol; sesquiterpene. | 1.0416 | | 85% Eugenol | |
| Pine | Schimmel (from abies pectinata) | Pinene; sylvestrine bornylacetate. | .8567 | —68.2° | Ester cont. 3.4% | |
| Pine | Schimmel (from Pinus Pumilio) | | .8604 | — 9.3° | 5.2 Bornyl acetate | |
| Pinus Palustra (Oil of Tar) | | | 1.0118 | | | |
| Rose | (Damascena) | Geraniol; citronellol. | | | | |
| Rosemary | | Borneol; bornyl acetate. | .8988 | + 5.1° | 2.70% Bornyl acetate<br>10.4 % Borneol | |
| Sassafras | | Safrol; eugenol; pinene; phellandrene; cadinene. | 1.0732 | + 2.9° | | |
| Santal | East Indian | Santalol. | .9730 | —16.8° | 96% Santalol | |
| Spearmint | | Carvone. | .9318 | —47.2° | | |
| Tansy | | Thujone; camphor; borneol. | .9218 | +35.7° | | |
| Thyme | | Thymol; pinene; cymene; linalol, bornyl acetate; carvacrol. | .9086 | — 1.4° | 21% Phenols | |
| Turpentine | (rectified by Schieffelin) | Pinene, etc. | .8655 | +12.5° | | 0.79% residue on evaporation |

METHODS OF MANIPULATION.

*Sterilization, Series A*:—Eight ounce bottles, to which 8 grams of purified talc had been added, and empty 2 ounce bottles — both series loosely stoppered with corks) were heated in an air bath for 2-3 hours, at a temperature of about 130°-140°. This procedure was followed, not to insure *absolute, final sterility* but to obtain *nearly uniform* conditions within the bottles (which had simply been taken from clean stock in our bottling department), i. e. to warrant sterilization before the bottles were actually exposed to the air of the laboratory.

Series B: — No sterilization precautions were taken.

*Solutions, Series A*:—A solution made up of 1500 grams of *good* commercial glucose (containing traces of $H_2SO_4$) in three liters of aqueous solution (i. e. enough water to bring the volume to 3000 cc.) was prepared and shaken mechanically to insure homogeniety. The same mixing bottle and cork were used throughout the set of experiments.

Series B: — The solution was prepared by dissolving 18 gm. ext. of beef, 36 gm. peptone and 1800 gm. sugar in sufficient water to make 3600 cc.

*Saturated Oil Solutions, Series A*: — These were prepared by adding 200 cc. of the glucose solution to each cooled eight oz. bottle (containing the talc.) shaking (on a mechanical shaker for 1 hour) and finally filtering through filter papers taken from two packages kept in the same drawer, under similar conditions and through funnels which had previously been heated and cooled—into the 2 oz. bottles (referred to above). The latter were in all cases (with exceptions which have been recorded) "well filled" — (filled somewhat above the shoulder of the bottle.) One lot of saturated-oil-solution served to fill two 2 oz. bottles — and these were in every case taken as duplicate experiments, bottles marked 1 and 2.

Series B: — Prepared same as series A excepting that no sterilization precautions were observed. Bottles marked 4 and 5.

CONTROLS.

Control tests (employing the methods outlined above and simply omitting the addition of essential oils) were run for each lot and also in series B controls with benzoic acid, the acid being added in excess and the undissolved portion filtered out.

TIME FACTOR IN SETTING UP EXPERIMENTS AND FURTHER PRECAUTIONS.

It was found convenient to run about eleven oils a day, thus making a total of twenty-three bottles, (including the control )and on successive days whenever possible until the series had been completed. In series A the bottles were kept out of direct sunlight — ordinarily in a dark closet. In series B the bottles were placed on a shelf in the laboratory in diffused sunlight.

EXAMINAION OF SOLUTIONS.

The solutions were examined for mold growth, cloudiness, gas formation or other evidence of spoiling at frequent intervals. In several cases the saturated oil solutions showed a slight amount of floating matter — filter paper or traces

of talc that had passed into the filtrate. These could however be generally distinguished from mold growth or cloudiness without much difficulty. In series B many of the solutions showed turbidity without any other signs of spoiling. Believing this to be due to chemical reaction between the oils and the constituents of the solution we have recorded there as negative.

Positive growth of mold or gas formation has been recorded *giving the time elapsing* between date of preparation of test and date when the solution had positively spoiled. Negative results are recorded as (——).

In series A the second bottle (bottle 2) of each test after standing for 30 days was inoculated with a postive growth from a blank that had fermented and had mold growth. In case of positive results the time recorded, in column 3, is that which has elapsed after inoculation.

At the time of the tabulation of results series A has stood for 24 weeks and series B for 8 weeks.

TABULATION OF RESULTS.

| OILS, ETC. | SOLUTIONS. | | | | |
|---|---|---|---|---|---|
| | SERIES A. | | | SERIES B. | |
| | 1 | 2 | 3 | 4 | 5 |
| Almond Bitter | — | — | — | — | — |
| Almond Bitter, no acid | — | — | — | — | — |
| Angelica | 1 week | 2 weeks | | 2 weeks | 2 weeks |
| Anise | — | — | 3 weeks | 2 weeks | 2 weeks |
| Bergamot | — | — | 3 weeks | 4 weeks | 4 weeks |
| Betula | — | — | — | — | — |
| Cajuput | — | — | — | — | — |
| Calamus | 1 week | 1 week | | 2 weeks | 4 weeks |
| Caraway Seed | 2 weeks | — | 3 weeks | — | — |
| Cardamom S | — | — | — | — | — |
| Cardamom Mang. | — | — | — | | |
| Cassia | — | — | — | — | — |
| Celery | 1 week | 1 week | | 2 weeks | 2 weeks |
| Chenopodium | — | — | — | — | — |
| Cinnamon | — | — | — | — | — |
| Cinnamon S | — | — | — | | |
| Citral | — | — | 20 weeks | — | — |
| Citronella | — | — | — | — | — |
| Cloves | — | — | — | — | — |
| Coriander | — | — | — | — | — |
| Coriander M. & O | — | — | — | | |
| Cubeb 9199 | 3 weeks | 4 weeks | | 2 weeks | 2 weeks |
| Cubeb 9813 | 1 week | 4 weeks | | | |
| Cumin | — | — | — | — | — |
| Dill | 1 week | — | 3 weeks | — | — |
| Eucalyptus | — | — | — | — | — |
| Fennel | — | — | 3 weeks | — | — |
| Geranium B | — | — | — | — | — |
| Geranium S | — | — | — | | |
| Ginger | — | — | 3 weeks | 2 weeks | 2 weeks |
| Hedeoma | — | — | 20 weeks | — | — |
| Horsemint | — | — | — | — | — |
| Juniper Berries | 1 week | — | 3 weeks | — | — |
| Lavender Flowers S No. 1 | — | — | — | — | — |
| Lavender Flowers M | — | — | — | | |
| Lavender Flowers D & O | — | — | — | | |
| Lavender Flowers M. Eng | — | — | — | | |
| Lemon 9469 | 1 week | 1 week | | 2 weeks | 4 weeks |
| Lemongrass | — | — | 3 weeks | — | — |
| Mace | — | — | — | — | — |

TABULATION OF RESULTS—*Continued.*

| OILS, ETC. | SOLUTIONS. | | | | |
|---|---|---|---|---|---|
| | SERIES A. | | | SERIES B. | |
| | 1 | 2 | 3 | 4 | 5 |
| Marjoram | — | — | — | — | — |
| Menthol | — | — | — | — | — |
| Mustard Art. | — | — | — | — | — |
| Neroli | — | — | — | — | — |
| Nutmeg | — | — | 3 weeks | — | — |
| Orange Peel | 1 week | 1 week | | 2 weeks | 2 weeks |
| Origanum | — | — | — | — | — |
| Pepper Blk. | 1 week | 1 week | | 2 weeks | 2 weeks |
| Peppermint | — | — | — | — | — |
| Pimenta | — | — | — | — | — |
| Pine (*Pin. pum.*) | 2 weeks | — | 3 weeks | 2 weeks | 2 weeks |
| Pine (*Abies pect.*) | 1 week | 2 weeks | | — | — |
| Pine Tar | — | — | — | — | — |
| Rose | — | — | — | | |
| Rosemary | — | — | — | — | — |
| Sassafras | — | — | — | — | — |
| Santal | 1week | 3 weeks | | 2 weeks | 2 weeks |
| Spearmint | — | — | 3 weeks | — | — |
| Tansy | — | — | — | 2 weeks | — |
| Terpineol | — | — | — | | |
| Thyme | — | — | — | — | — |
| Thymol | — | — | — | — | — |
| Turpentine | 1 week | 2 weeks | | 2 weeks | 2 weeks |

Conclusions: — The following act as preservatives; oils of bitter almond, bitter almond no acid, betula, cajuput, cardamom, cassia, chenopodium, cinnamon, citronella, cloves, coriander, cumin, eucalyptus, rose geranium, horsemint, lavender, mace, marjoram, mustard art., neroli, origanum, peppermint, pimenta, tar, rose, rosemary, sassafras and thyme and menthol, terpineol and thymol.

Oils of angelica, calamus, celery, cubeb, lemon, orange peel, black pepper, pinus, pumilio, santal and turpentine do not act as preservatives.

The preservative action of ths following is questionable: oils of anise, bergamot, caraway seed, dill, fennel, ginger, hedeoma, juniper berries, lemongrass, nutmeg, pine (abies pectinata), spearmint and tansy and citral.

At this writing series B has not been standing sufficiently long to arrive at any definite conclusions as to comparison of results of the two series.

We would take this opportunity of acknowledging the willing and valuable assistance of Dr. Roddie Minor in preparing the solutions.

RESEARCH DEPARTMENT, SCHIEFFELIN & Co., New York, August 10, 1912.

## MORE TROUBLE FOR THE DRUGGIST.

One would think that with cut rate, chain store and department store competition, pure food and drugs legislation, drastic city health board ordinances, the Richardson Bill, the Owen Bill, and other restrictive measures in prospect, the retail druggist had troubles enough for one poor mortal.

But it seems that, like Job's boils, trouble no sooner is overcome in one place

than it breaks out in another. As poor Job could not even sit down in comfort, so the retail druggist is given no rest. He is the butt of every drug reformer's censure and is made the scapegoat for everything that goes wrong in medicine or pharmacy.

The druggist is expected to bear all, suffer all in a meek and lowly spirit, while he adheres strictly to high professional ideals, giving no thought to the morrow as to wherewithal he shall be fed or wherewithal he shall be clothed. He must eke out his existence from the filling of prescriptions and eschew all side lines, even if he gets only two or three prescriptions a day and these to be filled by proprietaries, whose virtues have been set forth in glowing colors before the physician by the detail man.

Now on top of all these troubles and tribulations comes the New York Medical Society, aided and abetted by certain members of the New York branch of the A. Ph. A., and seriously proposes to blacklist all druggists who deal in side lines. Only those who confine their business to the filling of prescriptions will be recognized as being worthy of the patronage of physicians.

Mr. Otto Raubenheimer, of Brooklyn, New York, who conducts a drug store that gives some idea of what the cutting out of side lines would mean to the average retail druggist, approves the plan of the New York Medical Society. He said in a recent interview: "My ideas on this are along the same lines as those of Professor Henry Kraemer of the Philadelphia College of Pharmacy, expressed by him in an address at a recent meeting of the American eMdical Association.

"I was a delegate from the American Pharmaceutical Association at that meeting. When Professor Kraemer brought out his ideas regarding the differentiation between the two kinds of pharmacists—the one who pays more heed to his side lines than to the careful compounding of drugs, and the one who is heart and soul in the work of preparing medicines, I told him that we in Brooklyn and New York had already made a step in that direction.

"I told him that there had been a committee appointed here, consisting of ten men from the county medical association and ten from the New York Branch of the American Pharmaceutical Association, to take up this matter.

"By the establishment of 'certified' pharmacies physicians would know whom to trust with the compounding of their prescriptions, especially when in a part of the city far from their homes. Some such plan of certification ought to be worked out."

When the members of the New York Medical Society have completed their list of good and bad pharmacists, it might be in order for the retail druggists of Greater New York to get together and make out a list of good and bad physicians. They have quite as much right to do this as the doctors have to classify the pharmacists, and "it is a poor rule that won't work both ways."

There is lying on our desk now a circular letter from a New York physician offering to pay commissions on cases of venereal ailments sent him by druggists.

Would it not be the better part of wisdom and discretion for both professions to cease meddling with the business of each other? Each has its own sphere into which the other has no right to intrude. Let each obey the laws governing its practice and there will be no good reason for either to complain of the other.—*The Voice of The Retail Druggist.*

## CERTIFIED PHARMACIES.

As the demand for a high-grade milk has given us "certified" milk, so the demand for high-grade, competent and reliable pharmacies—pharmacies where a physician may send his prescriptions with the assurance that they will be compounded conscientiously—promises to lead to the establishment or recognition of "certified" pharmacies. The pharmaceutic profession no less than the medical profession has long recognized that many who are licensed to conduct a "drug store" are not equipped to compound prescriptions. While it is generally conceded that the amount of real drug business is not sufficient to furnish a livelihood for more than an extremely small portion of those engaged in it, there is an opportunity for a limited number to conduct high-class pharmacies, and many schemes have been proposed for establishing some sort of dividing line between ordinary drug stores and real pharmacies.

The plan of examining pharmacies and issuing licenses to those which meet the requirements, urged by M. I. Wilbert some ten years ago, was recently again proposed at a joint meeting of the Medical Society of the County of New York and the New York branch of the American Pharmaceutical Association, and it was decided that a committee to consist of ten members from each society should draw up regulations or requirements for the "certification" of pharmacies."

At this meeting one of the speakers made the point that a physician knows the reliable pharmacies in his own neighborhood but is entirely at sea when away from home, and that there should be some method of certifying to pharmacies at which physicians can have absolute confidence that their prescriptions will be compounded correctly and with the skill and care of the properly trained pharmacist whose business is conducted in accordance with medical and pharmaceutic ethics.

While the establishment of requirements for such certifications should be carefully considered, the need of a dividing line between the druggist whose energies are chiefly devoted to the sale of cigars, chewing-gum, soda-water and patent medicines, and the pharmacist to whom one may safely entrust the compounding of prescriptions is so urgent that we shall look forward to the outcome with much interest. We are reminded at this time that physicians have long attempted through consultations and discussions—generally informal—to gain information regarding the qualifications of pharmacists in the various parts of the town or city in which they practice.—*Journal A. M. A.*

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## TWO KINDS OF PHARMACIES CAN SUCCEED.

Has it ever occurred to you, dear reader, that we could have two kinds of pharmacies in this country and have them both successful? Suppose we had a standard for such stores as desired to fill physicians prescriptions, these stores to be known by some readily recognizable sign, prominently displayed for the benefit of the public, this class of store to be known as a "Prescription Pharmacy" and its medicines to be "certified" as being absolutely right for human consumption,

physicians to have a list of these stores posted conspicuously in their offices, and patients told to go to any one of them they chose—naturally the nearest one.

The certification of these stores would be under the control of the State or National Board of Pharmacy, and possibly a fee would be charged for examination. Inspectors would be free to come and go in such places, much as they do in examining National Banks, and no pharmacist would be allowed to maintain his license or fill prescriptions who failed to live up to the requirements of the Board of Examiners.

The second class of stores would be known as "drug stores," and would have the right to sell drugs and chemicals and everything else they pleased. In other words, they would be merchants running large or small department stores, depending on location, etc. They might even be allowed to have a prescription department, but the chances are the requirements would be so strict that the "drug store" would gladly turn this portion of the business over to the "certified pharmacy."

Now, we know what you are going to say. You rise to remark that a scheme of this kind is not new; that it has been in vogue for years in Europe and that it is not applicable to this country because we cannot have the same guarantee of protection of territory in this "land of the free" as the pharmacist abroad has. True, but nevertheless we believe the plan as outlined would work satisfactorily in the United States.

If the "department pharmacy" would give up its prescription department, and add, say a floral department, in its stead, and the "prescription pharmacy" would give up its sundries (aside from those belonging to a prescription store) would not both be better off? Think of the worry off the mind of the fellow who hates the prescription business anyway and wishes he had never seen a prescription; also the care off the shoulders of the ethical cuss who hates to sell candy and cigars, but feels he has to, to make a living.

A plan of this kind would hardly be applicable to the country stores, but we believe some such scheme is feasible for all towns of 10,000 inhabitants and over.—*Pacific Drug Review.*

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## PHARMACY A COMMERCIAL PROPOSITION.*

WILLIAM A. HOWE.

The writer, after fifteen years' work as proprietor of a drug store, has come to the conclusion that pharmacy is not so much a profession as it is a purely commercial proposition, with long hours to work, and sometimes, for small profit.

From my own experience and what I have seen in a limited way, there seems to be something radically wrong in the conditions surrounding the practice of pharmacy. We all know it is almost impossible to get good registered clerks at salaries which the ordinary store is able to pay. Neither can we blame the

*Read before the O. S. P. A.

clerks for going into other lines of work for which they receive ofttimes a better salary for less hours' work, and incidentally have time to get acquainted with their families.

From a financial standpoint, the best drug stores today are the ones which have the best business management, together with a large number of good paying side lines.

By the best business management I do not mean simply good buying at low prices; while this is essential, it is not all that is necessary by any means. To do a successful and profitable drug business, quite a number of other things are essential besides good buying.

Every live druggist should take time to be an active member of the Business Men's Club, Chamber of Commerce or other organization representing the business men of all lines in his city. He should be a booster for anything for the good of his home town, either for bringing in new business or for making it a better city in which to live. Don't be a stranger to your own competitors or the other merchants, but meet with them and discuss trade conditions. Let them know you are alive and interested in any of the good things they are doing. More than this, when the occasion arises, help them with your money to the extent of your ability, and by all means give cheerfully when you do give.

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## WILL THEY FIGHT?

The United Kingdom is a big attraction for American manufacturers of proprietary medicines. The latest to come to us are those who offer their goods upon some plan in which cooperation or profit-sharing is held out as the feature. "Rexall" came to us about a year ago, and the fact was not ignored by their competitors in the United States, who were not slow to realize that if there is anything here for "Rexall" there might also be for them. So now we have "Nyal" proprietaries offered to the trade. "Nyal" (New York and London) have made a beginning in Ireland, where they are not bothered with medicine-stamp duty nor with National Insurance Act medical benefit. So far British manufacturers and wholesalers have not worried themselves about these cooperative or profit-sharing ventures, but it is just as well that we should note that another bird from the eagle's brood has come to our shores. In the past some of these high fliers have come to stay.—*The Chemist and Druggist.*

# Papers Presented to Local Branches

## THE NEW HOUSE OF DELEGATES OF THE A. PH. A.*

JOSEPH W. ENGLAND.

Probably one of the most important forward steps ever taken by the American Pharmaceutical Association was the formation of the House of Delegates at the recent Denver meeting. It was created by resolution and not by by-law. Its functions are distinctly limited; it may become a very important factor in the work of the Association and be given larger powers, or it may fail to meet the needs of the Association and be abolished. Although of the same name as that of the governing body of the American Medical Association, its powers and duties are radically different.

Originally, the American Pharmaceutical Association was a delegate-body, delegates being sent by colleges of pharmacy and pharmaceutical organizations to the annual meeting, the thought being that by making the Association an association of delegates the cities would be encouraged to form local organizations; but later it was feared that the Association might become subject to the control of local organizations, and it was thought best to be independent of all local bodies, so individual membership was made dominant. Strange to say, however, while the delegate system as the controlling power of the Association was abolished the system itself was continued, but with the delegates having no duties to perform. Hence, the attendance of delegates, for many years, has been perfunctory. It is true that many of the delegates exerted, as individual members, an important influence in the councils of the Association, but it was felt that this influence could be more widely extended and made potential for the good of the Association, if the delegates were given specific duties.

The membership of the House of Delegates will consist of three regularly elected or appointed delegates from Local Branches of the American Pharmaceutical Association, State and Local Societies, Colleges and Schools of Pharmacy and delegates from the National Association of Retail Druggists, National Wholesale Druggists Association, American Medical Association, National Association of Boards of Pharmacy, Women's Organization of the National Association of Retail Druggists, National Association of Manufacturers of Medicinal Products, American Chemical Society, Association of National and State Food and Dairy Departments, Association of Official Agricultural Chemists, and from the departments of the Army, Navy and Public Health and Marine Hospital Service, the American Association of Drug Clerks, the credentials of whom shall all be approved by the Council; together with five members of the Council, appointed

* Read before the Philadelphia Branch A. Ph. A.

by the Chairman of the Council. The President, President-elect, Treasurer, General Secretary and the Chairman and Secretary of the Council shall be members ex-officio.

With such a widespread membership in the House of Delegates there is danger that the body may become unwieldy, and also, that outside interests may dominate the interests of the Association. The first danger can be readily met, if it should occur, by reducing the number of delegate-representation from three to two or one; and the second, by the fact that a majority of the delegates will probably be in the future, as they have been in the past, members of the Association.

The elected or appointed delegates hold office for one year, or until the credentials of their successors shall have been approved by the Council.

Each delegate is entitled to one vote. No delegate shall act as the proxy of another delegate who has been seated nor as delegate for more than one Association, organization or institution. Any member of the Association may attend any session of the House of Delegates and has the privilege of the floor.

The first session of the House of Delegates at each annual meeting will be called to order by the Chairman or one of the Vice-Chairmen, or the Secretary of the preceding House; or, in the absence of all of these, by the Secretary of the Council

The House of Delegates will exercise the following functions:

1. To receive and consider the reports of delegates from the bodies which they represent in the House of Delegates.

2. To consider and report upon such resolutions, and upon such other subjects as may be referred to the House of Delegates by the Council, by the Sections or by the Association in general session.

3. To make a final report of the business transacted to the final session of the outgoing Council at each annual meeting.

4. To adopt all rules and regulations necessary to the proper conduct of its business and not inconsistent with the Constitution and By-laws of the Association and the Council.

It should be noted that the House of Delegates can exercise only such functions as have been specified, or may be hereafter specified by the Council. It can either initiate resolutions, or it can consider and redraft those referred to it by the Association, Sections or Council. It is in effect, a clearing house in which resolutions can be referred and proposals moulded into shape for consideration by the Council —which still remains the executive body of the Association—and which, in turn, reports to the general assembly. In this way, questions can be fully and thoroughly discussed before the House of Delegates, both by delegates and members, and the business of the Association, Sections and Council expedited.

The House of Delegates will be, also, the connecting link between the colleges of pharmacy and pharmaceutical organizations and the Association whereby cooperation and coordination of work can be secured. When delegates are appointed to attend meetings of a delegate body they naturally bring with them the wishes

of the bodies they represent, and when they return they carry back the results of their deliberation.

In this way there can be closer connection in work and reciprocal action, and the Association can better represent the interests of the whole country, and be, in effect, what it should be, a more truly representative national organization.

As one of the local branches, the Philadelphia Branch of the American Pharmaceutical Association, is entitled to and should send three delegates to the next annual meeting at Nashville in 1913, and the writer would suggest that the by-laws of the Branch be amended to provide for the selection of such delegates.

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## THE PHARMACIST'S DUTY TO HIS PROFESSION.*

A. G. ERKEL.

As you all know, the State Association claims a sort of parental relationship to the college, since it was the chief agency that induced the Regents to add the college to the university. The association was largely responsible for the first appropriation of $5000 for the college in 1891. This committee therefore, is the connecting link between the college and the association. Its chief function, I take it, is to point out to the association and to the pharmacists of the Northwest what the relationship between the college and the association should be. In taking such prominent part in the establishment of the college, the association must have had in mind the great value which an educational institution of high rank would be to the profession. The inevitable inference is that the association would utilize such an institution to the utmost. The profession and the association, except a comparatively few of the more progressive individual pharmacists, have been more or less indifferent to the advantages which the college affords the calling. The standard of pharmacy, like that of any other calling, is determined largely by the standards of the individuals composing it. It can be said without fear of successful contradiction that pharmacy in Minnesota has not developed as rapidly as it could have done if it had used to the fullest the advantages and opportunities offered by the college. The number of graduates and the number of students in attendance are not at all commensurate with the numbers practicing pharmacy. This is due to a short-sightedness on part of the pharmacists who do not insist upon a sufficiently adequate training for their apprentices and clerks. They do not sufficiently appreciate the fact that their calling is a trust in their hands upon which they as trustees are bound to administer according to the duties which this trust imposes. Most pharmacists are delinquent in that they do not recognize any duties toward the profession at large. They do not look upon the profession as something concrete made up and determined by the individual members and so lose sight of their responsibilities in this respect. Every pharmacist is doing all he possibly can to improve his own conditions, but what is he doing to improve

* Read at the June meeting of the Northwestern Branch of the American Pharmaceutical Association.

the conditions and standard of the calling of which he is a member? The duty of the pharmacist lies in two directions—first, to himself; second, to his calling. It must be obvious to those who give the matter even little thought that most progress is mental and intellectual and that, therefore, the standard of a calling is determined by the standard of the educational requirement placed upon the members of a calling. Here we have an educational institution of the university grade, rated as among the first in the country, and yet how few pharmacists are using it. It is a fact that many of the students in attendance at the college have not been sent by pharmacists—a few are in attendance against the advice of some pharmacists. It is on account of this indifference and near-sightedness on part of pharmacists that the medical and dental professions have long ago distanced us. Their growth and development have been along educational and qualitative lines. *Measured by the value of the service which the medical, dental and pharmaceutical professions render the state, the standard of pharmacy should be nearly that of medicine and far in advance of dentistry.* That this is not the case is entirely the fault of pharmacy itself. Medicine and dentistry guard their standards jealously; pharmacy is indifferent about its standard. Is there any wonder that pharmaceutical conditions are not improving more rapidly and that some of our best qualified pharmacists are leaving the ranks? Now what is one of the specific duties of every pharmacist? *It is that he send his apprentices and clerks through the College of Pharmacy or that he insist that his clerks be graduates.* If every pharmacist would do this, in ten or fifteen years pharmacy would be holding its rightful position among the honorable professions. How many of our pharmacists are going to rally to the standard?

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## REPORT TO THE WASHINGTON BRANCH, A. PH. A. UPON THE 1912 CONVENTIONS OF THE N. A. R. D. AND THE A. PH. A.

WILLARD S. RICHARDSON.

The N. A. R. D. convention held in Milwaukee during the week of August ninth was in many respects the most important ever held by that organization. Registration was much in excess of the thousand mark, and at all the sessions there was a large, enthusiastic, working attendance of delegates. All seemed to fully realize that they were delegates actually representing the national retail drug interests, and there was greater earnestness and broadness than I have ever before witnessed. The efforts to better the condition of the trade were not only sincere; but there was a frank and fair acknowledgement of the betterments already effected.

All the deliberations showed the N. A. R. D. to be a clean, independent organization of retail druggists exclusively; capable of fully caring for the interests of the retail trade; willing at all times to openly and sincerely cooperate with allied interests, without in any sense being subservient to them.

In connection with the U. S. P. and N. F. propaganda there was evidence of considerable progress; especially in those sections and places where the local as-

sociations had used real effort; had cooperated with the parent organization, the N. A. R. D., instead of simply leaning upon it. There was ample evidence that all the claimed purposes of the propaganda were attainable; in considerable measure had been attained, and that the druggist who would intelligently use all the literature and other helps supplied by the N. A. R. D. would help the physician to a higher and more effective plane of practice; protect the suffering public from many nostrums; make the druggist more truly worthy of the name of "pharmacist," and at the same time so add to his profits as to stamp him worthily as a business man.

Legislation was one of the leading issues, in fact, it may be said to have been the issue. It was appreciated that no difference what part of the general issue of the Association might be taken up, "To make the drug business pay better," that wherever better business was sought, whether it be through the betterment of qualities, prices, or service, the desired betterment could rarely be accomplished without the repeal, amendment, or enactment of some law.

The courage of the N. A. R. D., a courage common to it and the A. Ph. A., had been fully evidenced by the high and cooperative stand taken by the organizations in their attitude toward pure drugs, and anti-narcotic legislation.

In the vital question of protection of retail prices, the spirit of the convention was that the demands for protection from both producers and wholesalers should be continued, that plans already evolved should be thoroughly tested, and that no weapon now at hand should be neglected. However, the greatest confidence and the highest encouragement was that price protection in its broad sense has become a national issue, a part of the so called "Trust" issue; that general opinion concerning it is rapidly changing, and that the prospects are bright for such changes in the Sherman and other laws as will enable druggists, as well as all other classes to protect their living profits with the direction and sanction of the laws.

A great deal that has been said of the N. A. R. D. Convention applies with equal force to the A. Ph. A. Convention held in the beautiful sky-land city of Denver during the week of August sixteenth. Thirty-eight States were represented by those in attendance, surely a remarkable showing; an absolute proof of the deep interest taken by the members in this venerable and still youthfully vigorous organization. It was quite noticeable to those who were accustomed to pharmaceutical and drug meetings that the A. Ph. A. men were in their seats and ready to open the sessions with a promptness and parliamentary precision quite unusual in such gatherings. Also there was a breadth in the manner of taking up work that was most encouraging, the same active interest being shown in such questions as legislative matters that were purely commercial, as in strictly professional questions such as higher educational qualifications for pharmacists.

In the matter of higher educational qualifications for pharmacists, it seemed to be the general sentiment that nothing radical should be done. The very word "education" in itself suggests that the elevation of standards must be conservatively and steadily progressive; that the pharmacal thought must be educated to a general desire for higher mental measures for graduates or registered men.

The belief was generally expressed that even a higher qualification was in a large measure a matter of legislation, it being evident that there is not only need

of legislation to elevate the states severally; but that there is need for national laws to regulate exchange of certificates, and establish national standards.

It was also shown that legislatively the druggists must act conscientiously upon the old saying that "what is good for the buyer is good for the seller;" that is to say, the conservation of our own interests must and only can follow the conservation of the interests of the consumers. If we would not be defrauded we must not in any way be conscious parties to fraud, whether the fraudulent thing be put in and to pass through our hands as mere merchandise, prescription drugs, or dispensing specialties.

The legislative work of both the A. Ph. A. separately and in unity was pointed out as having placed much actual accomplishment to the credit of the sister associations, and I suggest that all interested persons should read the reports of the Legislative Committees of the associations.

Perhaps the most notable event of the meeting was the creation of what is to be known as "The House of Delegates." Under it, the position of delegate from any state, local, or allied organization will be clearly defined. The House of Delegates will be a sort of crucible; a melting pot to take the many resolutions, suggestions, and general new business and refine them, reduce them to practical, brief and lucid form so that the general body may act upon them with both speed and intelligence.

The retiring officers of both associations deserved and received the thanks of those whom they had so well served, to them and the equally energetic incoming officers it was freely acknowledged that the acceptance of office from either association was the taking up of a burden for which there was no reward of substance, and yet the greatest of all rewards: grateful love from their fellow men.

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## DIGNITY IN BUSINESS.

Dignity is a fine thing in its proper place. The druggist probably has a little more reason for being dignified than the cobbler has, but if a man is going to be dignified he must not feel offended if people do not warm up to him very much. Dignity is a good deal like a big snow bank, a fine thing to look at as it glistens in the sunshine, but not a thing that anybody wants to mix up with very much. If you are going to be dignified, save your dignity for proper times and occasions, and don't let it get in the way when you are selling goods or visiting with customers. You can't make any friends for the store by showing that you feel a little above the ordinary business plane. When you get to feeling above the people whose money you are after, you will find that they will squeeze their money a little tighter than they did before you developed that snow-bank quality.—*The Spatula.*

# Report on the Progress of Pharmacy

For the Year 1912

(Fifth Installment.)

*Digitalis: Resume of the Active Constituents of Leaves and Seed.*—In an address delivered before the "Rostock Apothecaries Socity," Prof. Kobert gave the following interesting resume regarding the active constituents of digitalis:

The leaves and seeds of *Digitalis purpurea* and *Digitalis Grandiflora* contain glucosides of the digitalin-group as well as glucosides of the saponin group—the leaves containing the active substances, digitoxin, digitophyllin and gitalin, together with the inactive saponins gitalin and digitsaponin, while the seeds contain digitalin and gitalin, of the digitalin-group, together with the active saponins digitonin Schmiedberg and digitonin Kiliani. Besides these well-defined substances, digitalis contains some enzymes, the composition of which has not yet been thoroughly investigated, but of which it is known that they possess oxidizing and hydrolyzing action upon the glucosides and thereby reduce their activity. Furthermore, it has been found that manganese is a constant associate of these enzymes (also called oxydases), and that thereby the leaves of the yellow variety of foxglove (*Digitalis grandiflora*), containing less manganese than those of the red variety (*D. purpurea*), are correspondingly less susceptible to this decomposition. To a certain extent protection from this change is afforded by properly and quickly drying the fresh leaves; but this is not always practicable in the case of wild growing digitalis, the leaves of which do not at once reach the pharmacist after collection, and have frequently undergone change before they are delivered. The final products of the decomposition of the three active cardiac glucosides, namely gitalin, digitoxin and digitalin, are considered, aside of the glucoses split off by their hydrolysis, to be completely inactive, and consist of the so-called digitoxigenin and digitaligenin.

Of the active substances of digitalis leaves —digitoxin, digitophyllin and gitalin—only the last named, gitalin, is represented in the infusion, into which it passes along with digitsaponin, so that digitalis leaves, even when extracted thrice successively with boiling water, do not lose their activity completely. But inasmuch as the infusion of the leaves possesses extraordinary salutary properties, it is demonstrated that gitalin must be considered by the practicing physicians as being the most important component of the drug. In a chemically very impure condition it has heretofore been supplied under the name of "digitalein," but it is now only a question of time when it will be available in a chemically pure form. Prof. Kobert recommends, in order to utilize the activity of the leaves completely, that the administration of the infusion be alternated with a dose of digitoxin, and that similarly the activity of the seeds may be secured by alternately administering solution of gitalin and digitalinum verum Kiliani.—Pharm. Ztg. LVII (1912), No. 59, 597.

*Plant Specimens: Preserving and Mounting.*—William Huren demonstrated before the Botanical Society of Western Pennsylvania a simple and effective method of preserving plant specimens whch will revolutionize the present slow and laborious mounting of herbarium collections. The fresh specimens are subjected to process of drying by means of steam, cold air and a press, which preserves their natural color. After this they are imbedded or inlaid on a soft surface, as blotting paper, cardboard, silk, etc., and a final protective coating of liquid celluloid is applied. The specimens thus finished retain their natural color, resemble paintings and are prac-

tically indestructable.—Sc. Am., 1912, Vl. 107, 10. O. R.

*Powdered Drugs: Commercial Quality of Some of the More Important Drugs.*—Henry G. Greenish and Miss Dorothy J. Bartlett have examined a large number of samples of powdered drugs of commerce, comprising thirty-three of gentian and eleven each of nux vomica and ipecacuanha, and describe the methods and results in a lengthy paper read at an evening meeting of the Pharmaceutical Society of Great Britain. The results, which were obtained both by chemical and microscopical methods, show that

*Commercial Powdered Gentian* still leaves much to be desired. Intentional adulteration with foreign vegetable powders still continues. Carelessly cleaned root is ground to powder, and a large proportion of the samples are deficient in water soluble substances.

*Powdered Nux Vomica* of commerce is of satisfactory quality. All the samples had normal microscopic characters, and contained alkaloid ranging from 2.38 to 2.80 per cent. This is partcularly gratifying in view of the fact that the powdered nux vomica of French commerce has recently been found to be frequently adulterated with ground olive stones and with raspings of ivory nuts.

*Powdered Ipecacuanha* of commerce was not quite so satisfactory, although with one exception they contained sufficient total alkaloid to comply with the recommendation of the Committee of Reference in Pharmacy. Two of the samples were not quite pure, one was probably Cartagena ipecacuanha and one other was not ipecacuanha at all—possibly supplied by mistake, however.—Pharm. Journ. and Pharmacist, February 17, 1912, 201-203.

*Coptis Root: Source and Constituents of Two Kinds Used in India.*—David Hooper states that coptis root, as used in India, is obtained from two sources. The first is collected in the Mishmi Mountains northeast of Assam, and is derived from *Coptis Teeta,* Wallich. The second kind of root is imported into Bombay from Japan and China, the latter probably being derived from *Coptis Teet,* var. *Chinensis,* while it is conjectured that the Japanese drug is the root of *Coptis anemonaefolia,* Sieb. et Zucc. There are slight differences between the two kinds of drug met with in the Indian baraars. "Mishmi tita" from Assam is a yellowish-brown rhizome, as thick as a quill or larger, having wiry rootlets or spiny projections where they have been broken off; the rhizome is jointed and frequently contorted, at the upper end of the joints become more marked, and one or more stem-clasping petioles often remain attached. A transverse section shows a thin brownish-yellow bark, with bright, orange colored, waxy segments of wood. The overseas drug brought to Bombay is more slender, of a light brown color, with fewer wiry rootlets; the rhizome often branches at the crown into two or three heads, which terminate in tufts or leaf-stalks crowded together and not separate as in the Assam drug. A transverse section shows a thick brown bark, with dull, yellowish-brown waxy segments. Both roots are extremely bitter and communicate a yellow color to water.

The Assam drug is the kind preferred and commands a much higher price than the Bombay drug. The drug has been analyzed by J. Dyson Perrins as far back as 1862, who reported a yield of 8½ per cent of berberine in a sample derived from *Coptis Teeta.* This statement has remained unchallenged during all the years since, and Mr. Hooper has therefore subjected samples of the drugs from Assam and from Bombay to chemical examination, with the following results:

| | Assam | Bombay |
|---|---|---|
| Moisture | 8.9 | 7.7 |
| Ash | 3.1 | 3.3 |
| Alcoholic Extract | 17.95 | 17.30 |
| Resin | 1.5 | 2.7 |
| Berberine (as iodide) | 7.63 | 7.17 |
| Berberine (as hydrochloride) | 8.6 | 8.3 |

The alkaloid was determined by calculating from the absolutely dried iodide, $C_{20}H_{17}NO_4$, HI, and the air-dried hydrochloride, $C_{20}H_{17}NO_4$, HCl, $2H_2O$. While the analysis points to the Assam root as a slightly better drug, it does not warrant any serious difference being made between the commercial valuation or medicinal reputation of the two kinds.—Pharm. Journ. and Pharmacist, April 13, 1912, 482.

*Euonymus Atropurpureus: Chemical Examination of the Root-Bark.*—A resumé of the literature showing that with the exception of dulcitol no definite constituent has heretofore been isolated from "Wahoo" bark, Harold Rogerson has made a complete

chemical examination of the drug and summarizes his result as follows:

The material employed consisted of the root-bark of *Euonymus astropurpureus*, Jacquin. An alcoholic extract of this material when distilled in a current of steam yielded an amount of a pale-yellow essential oil equivalent to 0.01 per cent of the weight of the drug.

The portion of the extract which was soluble in water contained a quantity of dulcitol (m. p. 186-188°) amounting to 2.09 per cent of the weight of the drug; a new acid, $C_5H_4O_3$ (m. p. 121-122°), which evidently is furan-B-carboxylic acid; a new crystalline alcohol, $C_{21}H_{30}O_4$ (m. p. 248-250°), which possesses a bitter taste, and has been designated euonymol; and a sugar, which yielded d-phenylglucosazone (m. p. 208-209°), together with small amounts of coloring matter.

The portion of the extract which was insoluble in water consisted of a dark brown resin, amounting to 3.2 per cent of the weight of the drug. From this resin the following substances were isolated: Three new alcohols, namely, euonysterol, $C_{31}H_{51}O.OH$ (m. p. 137-138°), homo-euonysterol, $C_{30}H_{49}O.OH$ (m. p. 133-134°), and atropurol, $C_{27}H_{44}(OH)_2$, melting at 283-285°; citrullol, $C_{29}H_{38}O_3(OH)_2$ (m. p. 285-290°), which has previously been obtained from colocynth (J. Chem. Soc., 1910, 97,102) and a mixture of fatty acids consisting of palmitic, cerotic, oleic, and linolic acids.

In the course of this investigation no product could be obtained corresponding to the "euonymin" of Wenzell or of Schmiedeberg, and, moreover, no evidence of the presence of any glucosidic substance in the bark. —Pharm. Journ. and Pharmacist, May 25, 1912, 689; from Communication of the Wellcome Research Laboratories.

*Fagara Xanthroxyloides, Lam.: Chemical Constituents of the Fruits.*—Having recently received from German Toga a quantity of the root, bark, and fruit of *Fagara Xanthoxyloides, Lam,* which are used there as a remedy for diseases of women, Prof. H. Thoms, assisted by his pupil, H. Priess, has subjected this material to chemical examination. From the fruits a volatile oil was distilled, which was found to contain dipentene, methyl nonylketone, caproic acid, acetic acid (in the form of an ester), linalool, a sesquiterpene, and a crystallisable substance of the formula $C_{12}H_8O_4$. This crystalline substance was found in larger quantity in the residue left after the distillation had been completed; it proved on examination to be a powerful fish-poison, and was therefore named xanthotoxin. Xanthotoxin melts at 145°-146°, is a lactone, and contains a methoxy-group. Further investigation showed that it was not only isomeric with bergapten, but contained the same groups of atoms. It is, however, a pyrogallol derivative yielding pyrogallocarbonic acid, $C_6H_2(OH)_3$ COOH (1, 2, 3, 4) when carefully fused with caustic potash, whereas bergaptene is a phloroglucin derivative. From the constitution of xanthotoxin, as indicated by the chemical composition and behavior, it must be regarded a methoxyderivative of cumarin-cumarone-pyrogallol. The constitution of bergaptene is not yet definitely known, but the author is now engaged in attempting to elucidate its constitution.—Pharm. Journal and Pharmacist, Jan. 13, 1912, 29.

*Gelsemium: Aesculin not a Constituent.*—O. Tunmann having proposed a method for the detection of aesculin by micro-sublimation, which he consideres specially adapted to the identification of gelsemium, mentioning that aesculin under the conditions of this test does not behave as it does under the conditions of an ordinary chemical experiment, Frank Tutin has made and describes experiments which prove the fallacy of Tunmann's assumption that the sublimate consists of aesculin and that in fact, the sublimate obtained consists of scopoletin (=Aescularin 5-methyl ether), which is the fluorescent principle in gelsemium. In consideration of his doubts based on a number of facts mentioned, Mr. Tutin determined the behavior of anhydrous aesculin, aesculetan, scopoletin, and finely ground gelsemium on heating. Small quantities of these materials were placed in small, thin glass tubes, the open end sealed, and the substances simultaneously heated in a metal bath, the temperature of which was recorded by a thermometer placed in the liquid. At 140° the scopoletin just commenced to sublime, and at 150° a distinctly crystalline sublimate was obtained. The temperature was then raised to 170°, at which point it was kept for several hours. The scopoletin then sublimed fairly rapidly, yielding almost colorless, well-formed crystals. The gelse-

mium also yielded a small sublimate, which was, for the most part composed of crystals of scopoletin. The aesculetin remained unchanged. The temperature was then raised to 210°, and again maintained several hours. The scopoletin fused, and sublimed rapidly; the gelsemium yielded a further sublimate, largely a tarry matter; aesculatin slowly sublimated in pale yellow crystals; the aesculin was decomposed, giving a further sublimate of tarry matter, together with crystals of aesculatin, the identity of which was proved by the melting point (264°).—Phar. Journal and Pharmacist, Feb. 10, 1912, 157; from Wellcome Chem. Research Publication.

*Gum Thus or Canadian Olibanum: A Substitute for Olibanum*—Karl Dietrich reports on an American substitute for olibanum, which comes into the drug market from Hamburg. Its M. Pt. is 77-78°. The following are its constants as compared with Resina Pini and Terebinthinae.

| | Acid Number. |
|---|---|
| Gum Thus | 145.65 to 146.03 |
| Pine Resin | 105 to 160 |
| Turpentine | 194 to 144 |
| | Saponif Number. |
| Gum Thus | 169.19 to 170.78 |
| Pine Resin | 150 to 190 |
| Turpentine | 108 to 179 |

The yield of oil of turpentine is as follows:

| | |
|---|---|
| Gum Thus | 9-10 percent. |
| Pine Resin | 3- 4 percent. |
| Turpentine | 20-25 percent. |

Consequently Gum Thus occupies a place about midway between Resina Pini and Terebinthina. The conclusions reached are that Gum Thus is a valuable American Pine resin, which however, contains no gum and therefore is not a gum resin.—Ph. Zhalle 1912, No. 24, 652-654. O. R.

*Black Mustard Seeds: Alleged Deficiency in Myrosin.*—As well known, black mustard seeds contain a glucoside, sinigrin, and an enzyme, myrosin—the latter acting upon the sinigrin in the presence of water, decomposing it with formation of volatile oil of mustard (allyl isothyocyanate. The statement has been frequently made that these seeds do not always contain sufficient myrosin to decompose all the sinigrin they contain, and that, to effect this, white mustard seeds, which contain an excess of myrosin, must be added to them. Prof. Henry G. Grunich in collaboration with Miss Dorothy J. Bartlett, has now made a comprehensive series of experiments, to ascertain to what extent, if any, this statement is correct, and as a result of their experiments, which are described in detail, they have arrived at the following conclusions:

(1) That in all black mustard seeds examined there is sufficient myrosin to decompose all the sinigrin present.

(2) That in two of the samples examined there is sufficient myrosin to decompose a much larger quantity of sinigrin than the seeds themselves contain.

(3) That, if properly preserved, black mustard seeds retain their myrosin for many years.—Pharm. Journ. and Pharmacist, Feb. 17, 1912, 203-205.

*Psoralea Corylifolia: Chemical Examination of the Seeds.*—Ernest W. Mann and R. E. Griffiths report the results of a chemical examination of seeds of *Psoralea corylifolia,* a plant growing as a common herbaceous weed over a great part of India, where the seeds have found some medicinal use. By steam distillation and extraction of the distillate with ether and petroleum spirits, about 0.2% of an oil and crystalline substance was obtained, having a marked heavy aromatic odor, the aqueous portion of the distillate giving a slight reaction for aldehyde by Schiff's test. By direct extraction of the powder 13.7% of a thick brownish oil was obtained. By extraction with alcohol 37.2% of a brown, thick extract was obtained, which, after extraction and washing with petroleum spirit, resolution on alcohol, and precipitation by pouring in water, yielded a resinoid amounting to 9.2 percent. of the seeds. This resinoid was practically entirely soluble in ether, chloroform, and in ethylacetate; but by treatment with ethyl acetate it was possible to divide it into two portions—the one insoluble, the other of an acid nature passing into solution. An inconsiderable trace of alkaloidal matter was obtained from the seeds by direct extraction with Prollius' fluid.—Pharm. Journ. and Pharmacist, Feb. 24, 1912, 260.

*Storax: New Method of Examination.*—Dr. C. Ahrens recommends and describes in minute detail a method for the examination of storax which depends upon the solubility

of its essential constituents in petroleum benzin. The petroleum-benzin extract, carefully dried to constant weight according to specific directions, is a light yellow, very thick liquid product, having an agreeable odor, and strong refractive power. Adulteration with colophonium, if in large quantity, is recognized by the darker color and the odor of the extract, and the loss of its fluidity. The author gives directions for determining the acid and saponification values of this extract, but does not mention the percentage of extract yielded by normal storax, nor give the actual constants observed. He has made a series of examinations of commercial samples of Storax and believes the method to be useful for detecting adulterations.—Pharm. Ztg. LVII (1912) No. 65,655; from Ztsch. f. öff. Chem. 1912, No. 14.

*Strophanthus Courmontii: Relative Toxicity, Therapeutic Action, etc., of the Seeds.*—Dr. Gordon Sharp describes some pharmaceutical experiments made with tincture prepared from the seeds of "Mandala Stropanthus" (S. *courmontii,* Sacl., var. *Kirkii*) in the same proportions as the B. P. tincture. While the active constituents of this variety of strophanthus is not definitely known, it is almost certainly a glucoside related to stropanthin, but perhaps more nearly to ouabain (pseudo-stropanthin), the glucoside yielded by *Acokanthera schimperi,* A. DC., and by the Gaboon arrow poison. The experiments have demonstrated that while the lethal doses for frogs needs to be three or four times that of *S. Kombi,* the therapeutic dose of the tincture for man need not be more than three-fifth larger than that prepared from the official seeds. The author does not doubt that in early days, when Stropanthus was new to practice, many of the successful results were obtained from tincture made from these seeds, and his present investigation shows that the seeds of *S. courmontii* are far from inert.—Pharm. Journ. and Pharmacist, Feb. 10, 1912, 161-162.

*Leeches: Method of Preservation.*—While the demand for leeches (*Sanguisuga medicinalis*) is modernly comparatively rare, in some localities pharmacists are not infrequently called to supply them. Theissen therefore makes some timely suggestions respecting the method of preserving them in a healthy condition, which are so simple that they can be readily carried out without occasioning trouble and with the apparent probability of avoidance of loss. The vessel containing the leeches should be kept in a cool place, accessible to fresh air, and as remote from the fumes of acids and the vapors and emanations of the drug store; nor will it suffice to place them in the cellar, however cool this may be. The animals themselves should never be touched until required for use, and then only the particular leech and with the hands previously well washed and wiped. The container of glass should be provided with a layer of peat-mold and a small amount of fresh water, and, the leeches having been introduced, it should be tied over with a double layer of well-washed gauze. In accordance with the weather (heat or storm) the water must be changed more or less often, but never by first removing the gauze covering —fresh water being allowed to flow through the gauze after removing the original water by tilting the vessel. Under this treatment certain algae are formed upon the peat-mold, which do not interfere with the health of the animals and may possibly be beneficial to them. At all events, under the treatment described the author has had no reason to complain of loss or inability to supply healthy leeches.—Pharm. Ztg. LV I (1912), No. 59, 596.

*Albumins: Determination of the Different Kinds in Urine.*—After illuminating the various errors that arise during systematic urine examinations, Grimbert gives accurate descriptions of the methods for the determination of the different kinds of albumen that may be present in urine. The importance of the subject makes a detailed description of these methods very desirable, but it must suffice here to briefly describe the preliminary experiments leading to the identification of the different albumins that may be present, leaving the details of carrying out the individual experiments for consultation in the original: To 10 cc. of the filtered urine 10 cc. of a saturated solution of sodium chloride and 2 drops of nitric acid are added. A turbidity of precipitation results, and the mixture is heated to boiling. If the turbidity disappears *primary albumen* alone is present; but if it remains, then *serin, globulin,* or *acetic acid-soluble-albumen* are present. The mixture is now filter-

ed. If the filtrate remains clear after cooling, but gives the biuret reaction, the presence of *secondary albumoses* and *peptones* is indicated, while failure to give the biuret reaction demonstrates their absence. If, however, the filtrate becomes turbid on cooling and gives the biuret reaction, only *primary albumoses* are present.—Pharm. Ztg. LVII (1912), No. 64, 644-645; from Journ. de Pharm d'Anvers, 1912, No. 13.

*Yellow Coloring Matter of Ergot: Character, Composition and Chemical Relations.*—Albert Freedom briefly reviews the characters of three yellow coloring matters from ergot heretofore described by different experiments, namely:

*Sclerocrystallin*, $C_7H_7O_3$, obtained by Dragendorff and Podwyssotzki (1877) in form of pale yellow needles;

*Ergochrysin*, $C_{21}H_{22}O_9$, obtained by Jacobj (1897) both in yellow crystals and amorphous; and

*Secalonic Acid*, $C_{14}H_{14}O_6$, obtained by Kraft (1906) in form of citron-yellow needles.

On comparing the descriptions of these three substances, the author says, we are forced to the conclusion that they are identical, and assuming Jacobj's molecular weight to be correct, his formula $C_{21}H_{22}O_9$ is the right one for the anhydride, while Kraft's formula, $C_{14}H_{14}O_6$, for secalonic acid is based upon analytical data that agree almost as well with the formula $C_{21}H_{22}O_9$, as with the one chosen by him—this applying also to the less accurate analyses of Dragendorff and Podwyssoszki.

By a method described, Mr. Freedom has now obtained a crystalline yellow coloring matter from ergot, which in several respects resembles that described, but which has the formula $C_{15}H_{14}O_7$ when dried *in vacuo* over sulphuric acid. It is further distinguished by the very high melting point, 338° C, whereas Kraft's secalonic acid melts at 224°. The substance in question was obtained pure in the form of pale yellow needles scarcely soluble in water, and sparingly soluble in alcohol or ether, but more readily soluble in chloroform, and quickly soluble in solutions of sodium hydroxide or carbonate with a golden yellow color. The author has obtained the acetyl derivative, which is shown to be derived from the anhydride, $C_{15}H_{12}O_6$, of the coloring matter, the latter probably belonging to the "flavone group" of coloring matters.—Pharm. Journ. and Pharmacist, May 4, 1912, 562-569.

*Fagaramide: A Constituent of the Root Bark of Fagara Xanthoxyloides, Lam.*—In conjunction with F. Thümen, Professor H. Thoms has isolated from the root-bark of *Fagara Xanthoxyloides*, Lam. an interesting amidé, to which they have given the name fagaramide. It was obtained by extracting the root-bark with benzene, concentrating and adding petroleum spirit, when the fagarmide crystallized out. It crystallizes well from alcohol, has the empirical formula $C_{14}H_{17}NO_3$, and melts at 119° to 120° C. It yields a bromine compound of the formula $C_{14}H_{17}NO_3Br_2$ which crystallizes without decomposition from benzene and other hydrocarbons only, crystallization from alcohol resulting in the separation of bromine. By oxidation with potassium permanganate, fagaramide yields piperonal and piperonylic acid and on prolonged boiling with 50 per cent. alcoholic potash decomposes into an unsaturated acid, which proved to be piperonylic acid and a base, volatile in a current of steam, which was identified as isobutylamine. From these products the conclusion was drawn that fagaramide was the isobutylamide of piperonylacrylic acid.

The isobutylamide of piperonylacrylic acid belongs to the group of substituted acids, very few members of which have been found in nature. The one best known is piperine, the alkaloid of *Piper nigrum*.—Pharm. Jr. and Pharmacist, May 25, 1912, 686.

*Methyl Alcohol: Toxicity.*—In addition to the Berlin catastrophe other cases of poisoning by methyl alcohol, either by internal or external use, or by inhalation, etc., are quoted from Germany, Hungary, Russia and the United States. Statistics by Buller, Casey and Wood in the latter country show 200 cases of poisoning, resulting in blindness or death. Dr. Rudolf Foerster writes on the action of methyl alcohol, generally producing atrophy or paralysis of the optic nerve. Strange to state, however, that large quantities of methyl alcohol have but very little effect on some persons, while small amounts will prove fatal to others.—Ph. Zhalle, 1912 No. 2, 46.

*Nicotine: Estimation in Tobacco.*—In an article on "The Toxic Factor in Tobacco" in the "Lancet" (April 6, 1912), the author,

questioning the reliability of the methods hitherto used for estimating the amount of nicotine in tobacco, proceeds to describe a method which he evidently regards as being satisfactory and better than other published methods. The opinion is expressed that the chief obstacle against arriving at the true amount of nicotine in tobacco has been due to the difficulty of separating ammoniacal compounds from alkaloidal base;" and the method recommended is the precipitation of the nicotine from solution by adding excess of iodine, dissolving the periodide (after washing) in acetone, and titrating with thiosulphate. The calculation is based on one molecule of nicotine combining with four of iodine.

E. F. Harrison and P. A. W. Self, commenting on the above, observe that while not dissenting in any way from the view that most or all of the published methods are by no means trustworthy or satisfactory, they are compelled to regard the method given by the *Lancet* chemist as being quite as unsatisfactory as most of the others. They give their reasons for this view, supported by experimental data, and describe a simple method to which they have been led in the course of some years experience in the determination of nicotine in tobacco, which they have found to give reliable results. This method consists in the addition of alkali to the tobacco or preparation of nicotine (slacked lime being used in the case of tobacco), and then to distill in a current of steam until all the nicotine has passed over, as shown by a few drops giving no cloudiness when treated with acid and excess of iodine. The distillate is received in a measured excess of standard acid, the delivery-tube of the condenser dipping below the surface so that no loss can occur; when all the nicotine is over, the distillate is titrated with standard alkali, using litmus solution or tincture of cochineal as indicator, and from the amount of acid neutralized by the distillate the total volatile alkali, consisting of nicotine and ammonia, is found. A further 10 cc. of normal acid is then added, and the liquid evaporated to about 50 cc. It is possible to lose traces of nicotine during the evaporation, but when once the total volatile alkali has been determined, loss of nicotine is of no consequence, and loss of ammonia cannot occur. The nicotine is then completely precipitated by iodine, and the ammonia determined in the liquid by adding thiosulphate and distilling with alkali. The working details are given, but must be consulted in the original, in Pharm. Journ. and Pharmacist, June 1, 1912, 1912, 718-719.

*Extractum Belladonnae Alcoholicum, B. P.: Modification of Formula.*—Arthur W. Nunn observes that Alcohol Extract of Belladonna, B. P. is not altogether satisfactory; it is always a sticky mass, and becomes softer with age. A more constant and far handier preparation is obtained by operating on the fluidextract, preliminary as directed in the B. P. as far as obtaining the weight of the "moderately firm extract," and finding the amount of milk sugar required. Then treat the residue with sufficient of a mixture of 7 parts 90% alcohol and 1 part of water, to make a syrupy liquid. Now add the requisite quantity (previously ascertained) of milk sugar, and evaporate to the required weight (about three-fourth that of the fluidextract used). The next step is to "granulate" the residue of evaporation by passing it through a No. 20 sieve; again check the weight of the mixture, and then dry by very gentle heat, making up the loss in weight at the end of the process with dried potato starch, and mixing lightly.—Pharm. Journ. and Pharmacist, March 9, 1912, 318.

*Zittman's Decoction: Rehabilitation into Medical Practice.*—In the course of his interesting address on the biological valuation of drugs containing saponins, by the haemolytic effect of the latter when brought in contact with blood corpuscles, Prof. Kobert. discussing the possible value of the method in clearing up some of the contradictory statements regarding the medicinal properties of sarsaparilla, directs attention to the rehabilitation of the well-known but obsolete "Zittman's Decoction" by its readmission into the G. P. V. During the discussion following it was mentioned by Dr. Fröhlig, a member of the revision commission, that this rehabililation of the ancient medicament was solely in consequence of the earnest recommendation and request of the medical members of the commission, who gave a decided preference to this preparation over that of "salvarsan" which had also been proposed for admission.—Pharm. Ztg. LVII (1912) No. 21, 214.

*Liquor Opii Sedativus, B. P. C.: Cause of Precipitation and Remedy.*—J. Manson has investigated the cause of the persistent precipitation in Liquor Opii Sedativus B. P. C. and finds this to be due to the decomposition of the calcium morphinate produced under the conditions of the method of preparation. This compound is decomposed by the carbonic acid of the air, calcium carbonate is formed and is precipitated, carrying with it the liberated morphine alkaloid, together with some extractive matter. If Liquor Opii Sedativus is a "desideratum," its stability might be maintained by the addition of dilute sulphuric acid, whereby an impure solution of morphine sulphate would be obtained—the lime being precipitated as sulphate. The ordinary sherry wine prescribed should also be replaced by detannated sherry. This, of course, alters the nature of the preparation, but its stability would be insured.—Pharm. Jour. and Pharmacist, March 9, 1912, 330.

*Ointments: Their Bactericidal Effect.*—As early as 1895 did Dr. E. Breslauer report on this subject. Dr. Robert Koch in 1881 proved that phenol dissolved in alcohol or oil does *not* possess any disinfectant properties. The author, Dr. Hugo Kuehl, states that the same is true of carbolated petrolateum. He refers to the toxicity of mercury, silver, and lead salts as based upon the dissociation theory of Arrhenins. Breslauer found that hydrous wool fat (lanolin) and cold cream (Ung. Leniens) are superior to petrolatum and anhydrous wool-fat as ointment bases, as carriers of disinfectants. The explanation is that ointment bases containing water are better carriers for antiseptics, because they are more readily absorbed.—Ph. Zhalle, 1912, No. 11, 273-276. O. R.

*Cacao Suppositories: Addition of Wax to Promote the Incorporation of Aqueous Solutions.*—P. van der Wielen and J. van Riel find that, by the addition of 2.5% of wax to cacao butter a base is obtained for suppositories which will permit the incorporation of aqueous solutions, glycerin or ichthyol up to the amount of 1 gm. to a 3 gm. suppository. They find that by the addition of wax the melting point of the cacao is reduced from the normal (32.5°) until the addition amounts to 3.4%, at which it has the melting point of 31.0°; by the further addition it then rises, reaching the body temperature (37.0°) when 6.05% of wax has been added. The authors furthermore find that the addition of 2.5% of wax serves well also for the incorporation of iodoform when the suppositories are made by the melting-method. If, for example, 300 mgm. of iodoform is melted with 3. gm. of cacao butter, the iodoform is completely dissolved at the melting temperature, but on cooling is again separated forming *large* crystals before the fat completely solidifies. By adding 2.5% wax, however, the crystals formed are very much smaller. The addition of wax presents the further advantage of obviating the use of hollow suppositories for the reception of solutions of potent medicaments.—Pharm. Ztg. LVII (1912), No. 55, 554; from Pharm. Weekbl. 1912, No. 25.

*Selenium: Technical Objection to its Presence in Sulphur and Pyrites.*—The "Zeitschr. f. Agnew. Chemie" calls attention to the importance which attaches to the presence of selenium in sulpuric acid, since mineral oils and wax refined by the acid containing the impurity assume an incurable yellow color, and even minute traces of the element in the liquor of a sulphite cellulose factory may give rise to serious difficulties. A circumstantial process for the estimation of small quantities of selenium in sulphur and pyrites is therefore given, the details of which may be consulted in the abstract from Chem. Trade Journ., June 1, 1912, 598, printed in Pharm. Journ .and Pharmacist, July 13, 1912, 47.

*Carbonated Waters: Estimation of Ammonia.*—G. D. Elsdon and Norman Evers, having noticed that the amount of free ammonia found in carbonated waters was often small, even in the case of obviously bad waters, have found that the presence of carbon dioxide in the distillate in quantities greater than 5 parts per 100,000 seriously interferes with the color produced by Nessler's solution. From an examination of waters aerated in the laboratory it was found that an aerated water containing as much as 0.020 parts of free ammonia per 100,000, might, if treated by the ordinary method, be returned as practically ammonia

free. The following process is proposed as the most satisfactory method of overcoming this difficulty: After removal of as much carbon dioxide as possible by shaking in a "Winchester," 500 cc. of the water are transferred to the distillation flask, and 5 cc. of $N/H_2SO_4$ (or more if the alkalinity of the water requires it) are added. Fifty cc. are then distilled off and rejected, thus removing the carbon dioxide. An equivalent quantity of N/NaOH and the usual amount of sodium carbonate are then added, and the estimation of free and albuminoid ammonia proceeded with in the usual manner. Many waters were aerated in the laboratory, and examined by this process. The results on the aerated waters were practically identical with those on the original waters as regards free ammonia. The albuminoid ammonia is slightly increased by aeration, whether it is estimated by the above process or by the ordinary method.—Pharm. Journ. and Pharmacist, March 23, 1912, 394.

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## RECOGNITION OF SYNTHETIC DRUGS BY NATIONAL PHARMACOPOEIAS.

The Editor of the Chemist and Druggist, (London) recently examined 15 national pharmacopoeias in order to determine the extent to which the modern synthetics are recognized officially, and sums up as follows:

"In all of the fifteen Pharmacopoeias considered in the foregoing *resume*, antipyrin, phenacetin, saccharin, and sulphonal are official. Leaving out of consideration the British Pharmacopoeia, 1898, the remaining fourteen Pharmacopoeias, which have all appeared during the present century, in addition to the above mentioned four synthetics, recognize forty-nine different new synthetic remedies. In the following tabulation the popular trade names are used, the figures indicating to what extent they are official:

Dermatol, 13 times.
Duotal, 13 times.
Trional, 12 times.
Diuretin, 11 times.
Salipyrin, 11 times.
Aspirin, 8 times.
Urotropine, 7 times.
Heroin, 6 times.
Protargol, 6 times.
Tannalbin, 6 times.
Aristol, 5 times.
Dionin, 4 times.
B-Eucaine, 4 times.
Creosotal, 4 times.
Iodol, 4 times.
Salophen, 4 times.
Veronal, 4 times.
Benzonaphthol, 3 times.
Euquinine, 3 times.
Lactophenin, 3 times.
Pyramidon, 3 times.
Tannigen, 3 times.
Tannoform, 3 times.
Xeroform, 3 times.
Airol, twice.
Betol, twice.
Exalgin, twice.
Migrainin, twice.
Novocaine, twice.
Stovaine, twice.
Suprarenin, twice.

Anesthesine, atoxyl, arsacetin, arrhenal, collargol, chinosol, diiodoform, reffatin, itrol, orexine tannate, orthoform, phenolphthalein, sozoiodol acid, sozoiodol ammonium, sozoiodol zinc, thiocol, urethane, and vioform, 1 each."

# Of General Interest

## NATIONAL WHOLESALE DRUGGISTS' ASSOCIATION.

### Thirty-eighth Annual Convention.

The thirty-eighth annual convention of the National Wholesale Druggists' Association was held at Milwaukee, Wis., during the week of October 14, with a good attendance.

The first session was formally opened at Hotel Pfister at 10 o'clock on Tuesday morning. The customary greetings were extended by the mayor and commercial bodies of the city, which were replied to on behalf of the Association by Dr. William Jay Schieffelin, of New York. The greetings of the American Pharmaceutical Association were presented by Geneal Secretary James H. Beal, of that society. Professor Beal's greetings were responded to by Mr. Albert Plaut, of New York City, who paid an eloquent tribute to the past work of the A. P. A. in its relation to pharmacy as a whole and to the National Wholesale Druggists' Association.

Greetings on behalf of the newly created National Association of Manufacturers of Medicinal Products were presented by Mr. Charles J. Lynn, of Indianapolis, to which response was made by Thomas F. Main, of New York The Proprietary Association of America spoke through George L. Douglass, Esq., to which Mr. Charles A. West, of Boston, responded. The New York Association sent greetings through Mr. M. R. Snow, the New Jersey and Pennsylvania Associations through Mr. C. Mahlon Kline, and the Virginia Association through Mr. Edgar M. Taylor, to which suitable responses were made respectively by Messrs. C. F. Weller, of Nebraska, Wlliam Scott, of Indianapolis, and C. P. Walbridge, of Missouri.

President Theodore F. Meyer's address dealt with the history and past work of the N. W. D. A., with the Eighth International Congress of Applied Chemistry, the Fifteenth International Congress of Hygiene and Demography, the Fifth International Congress of Chambers of Commerce; national legislation proposed and enacted; the general condition of the wholesale drug trade, and paid a fitting tribute to the memory of the late Frank A. Faxon, ex-President of the Association.

Subsequent sessions of the convention were devoted mainly to the consideration of reports of the officers and committees, and included also the hearing of addresses from distinguished visitors.

Among the reports to which the Secretary of the A. Ph. A. had the pleasure of listening and from which extracts will be printed in future issues of the Journal were the following:

Committee on Commercial Travelers and Selling Methods, by F. M. Berks, Peoria, Ill.; Committee on Credits and Collections, by Mr. Lee M. Hutchins, Grand Rapids, Mich.; Committee on Memorials of Deceased Members, by H. J. Schnell, New York; Committee on Fire Insurance, by George W. Lattmer, Columbus, Ohio; Employer's Liability and Workingmen's Compensation, by James W. Morrison, of Chicago; Committee on Drug Market, by Irving McKesson, New York; Committee on Paints, Oils and Glass, by W. T. Harper, Ottumwa, Iowa; Committee on Proprietary Goods, by William P. Ritchey, of New York; Committee on Legislation, by Charles A. West, Boston; Committee on Prevention of Adulteration, by O. L. Biebinger, St. Louis; Committee on Trade Marks, George M. Beset, Burlington, Vt.; Special committee on Anti-Narcotic Legislation, by Charles A. West, Boston.

All the reports were characterized by the evident thoroughness and painstaking care with which the committees had studied their respective subjects and by the breadth of view expressed. the several questions being considered in a large and liberal way rather than from the narrow standpoint of trade interests.

At the Wednesday morning session Mr. Thomas H. Potts, Secretary of the N. A. R.

D., presented the greetings of that associations in an admirable and eloquent address dealing with the relation of his own society to the allied organizations in pharmacy, and with the N. A. R. D. activity in legislative matters.

Professor Edward Kremers, of the School of Pharmacy of the University of Wisconsin, delivered an interesting address upon "The Cultivation of Medicinal Plants," in which he reviewed the history of drug collection and cultivation, and gave an outline of the efforts at the State University to place drug plant cultivation upon a scientific basis.

Mr. Albert Plaut gave an outline of the work of the Committee of Revision of the United States Pharmacopœia, showing the progress of the work to date and predicting that the report of the Committee of Revision would be ready for final consideration within another year.

The report of the Special Committee on Anti-Narcotic Legislation was presented by Chairman Charles A. West, of Boston, in connection with which there was read a telegram from President William H. Taft, which endorsed proposed legislation regulating the sale of narcotics, and requested the support of the Association for its enactment.

Dr. Hamilton Wright, of Washington, D. C., U. S. Opium Commissoner, was present at the Thursday morning session by special invitation. Dr. Wright delivered a very interesting address, reviewing the history of the growth of the opium habit, and the international conventions at the Hague and at Shanghai, and the efforts being made by the principal powers of the world to regulate the international traffic in narcotic drugs, and explained the provisions of the present Harrison Bill now pending before the United States Congress.

At the conclusion of Doctor Wright's address there was a general discussion of the Harrison Bill, to which several minor amendments were suggested. The consensus of opinion was in favor of the bill as a whole, but suggesting greater certainty of definition, so as to express more specifically the character of acts it is designed to cover, and so that the bill should control the illegitimate traffic in such drugs when carried on outside of the regular drug trade, whether wholesale or retail.

At the fifth session the Board of Control made a lengthy and comprehensive report. In its character the Board of Control seems to combine the functions of the A. Ph. A. Council and the N. A. R. D. Committee on Resolutions. The report of the Board of Control dealt with the reports of the various officers and committees, and presented resolutions expressing the attitude of the N. W. D. A. upon the various questions considered.

The number of new members elected was larger than at any previous convention, consisting of eight active, and fifty-four associate members. Mr. John N. Cary, of Indianapolis, Ind., and Col. John B. Purcell, of Richmond, Va., were elected to honorary membership.

Officers elected for the ensuing year are as follows:

President—Albert Plaut, New York.

First Vice-President—William B. Strong, of Milwaukee, Wis.

Second Vice-President—John A. Gallagher, Kansas City.

Third Vice-President—Benjamin A. Jackson, Providence, R. I.

Fourth Vice-President—Marion Ward, Indianapolis, Ind.

Fifth Vice-President—Lynn Fort, Atlanta, Ga.

Secretary—Joseph E. Toms, New York.

Treasurer—Samuel E. Strong, Cleveland, Ohio.

Board of Control—Charles Gibson, Albany; Charles E. Bedwell, Omaha, Neb.; Andrew J. Geer, Charleston, S. C.; George R. Merrell, St. Louis; James W. Morrisson, Chicago.

General Representative—F. E. Holliday, New York, N. Y.

The official headquarters of the Convention were at the Hotel Pfister, which, however, was unable to accommodate all of the members present and who were accommodated at other nearby hotels. Abundant entertainment in the way of auto rides, luncheons and theater parties were given to the visiting ladies. On Thursday afternoon an excursion was made to the Horlick's Malted Milk laboratories, at Racine, Wis., and in the evening an elaborate banquet was held at the Hotel Pfister, Mr. James W. Morrison, of Chicago, being toastmaster, an office which he discharged with great ability. Speeches were made by the retiring president,

Mr. Theodore F. Meyer; Hon. Levi H. Bancroft, Attorney-General of Wisconsin; Rev. M. Dorward; Hon. Joseph C. Donnelly, Chief Judge of the Civil Court of Milwaukee, and by President-elect Mr. Albert Plaut.

Jacksonville, Fla., was selected as the next meeting place, some time in November, not earlier than the 17th.

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## THE DENVER MEETING OF THE NATIONAL ASSOCIATION OF BOARDS OF PHARMACY.

A. F. SALA.

The National Association of Boards of Pharmacy was called to order Tuesday morning, August 20, at Denver, Col., by the President, R. H. Walker of Gonzales, Texas. After the usual speeches of welcome and responses thereto, the committee on credentials ascertained who was entitled to a voice in the meeting. This done, the members proceeded to dispose of the business on hand. President Walker in his usual and happy style then presented his address, making several recommendations that were later on approved by the association.

The committee on questions and methods made a very voluminous and entertaining report containing much information as to the work being done by this association.

F. C. Dodds, Secretary of the Illinois Board of Pharmacy, introduced a set of resolutions fixing the minimum and average grades for successful examination as a basis for reciprocal registration. These grades were, after due and thorough discussion, fixed at not less than 60 per cent in any subject and an average of not less than 75 per cent upon the whole. The resolutions also provided for a fee of $5.00 to be paid by the candidates to the National Association Boards of Pharmacy. They further provide for an advisory committee to be appointed by the President, whose duty it shall be to visit the several boards at their examinations with a view of bringing about greater uniformity in methods.

The expenses of this committee are to be paid out of the $5.00 fee, it being shown by the treasurer's report that sufficient funds can be collected, 300 reciprocal registrations being recorded in the year just closed.

The committee on reciprocity with Cuba reports progress and feels that same can be brought about in a short time.

The Committee on Legislation reported a scheme to establish a National Board of Examiners through which a national certificate is to be issued, good in all states. This means of course that the candidates must be graduates in pharmacy and comply in all respects with the most advanced ideas of registration. The general drift and inclination as exhibited during the discussion of this scheme is toward the college prerequisite and thus bring about reciprocal relationship and registration in a more satisfactory way.

Both of these schemes—Mr. Dodds and that of the Committee on Legislation—were adopted by the Association.

Three whole days were spent at the Denver meeting in discussing the various matters pertaining to registration, and those present feel that steps in the right direction were taken towards clearing the pharmaceutical atmosphere relative to registration in its various forms.

A scheme for intelligent examinations of the beginner in pharmacy was also presented, which if followed generally, will simplify that part of our problems.

The election of officers for the ensuing year resulted as follows:

President—Wm. Mittlebach, Boonville, Mo.

First Vice-President—I. P. Gammon, Boston, Mass.

Second Vice-President—H. C. Shuptrine, Savannah, Ga.

Third Vice-President—Miss Kittie Harbord, Salem, Ore.

Secretary-Treasurer—A. F. Sala, Winchester, Ind.

# Reports of A. Ph. A. Committees

## REPORT OF COMMITTEE OF PHYSIOLOGICAL TESTING.

The committee that you have appointed to investigate the subject of physiological testing, desires to make at this time the following report:

During the year, since the last meeting of the Association in Boston, considerable work has been done in testing the following substances:

Preparations of Cannabis Sativa.

Preparations of Suprarenal Gland.

Preparations of Ergot.

Preparations of Heart Tonics of the Digitalis Series.

Our work has progressed to a point where we feel it wise to submit specific reports on preparations of Cannabis Sativa and the Suprarenal Glands. Please note the detailed reports that follow.

Our work on Ergot has not progressed to a point where we believe it wise or desirable to report definite results. The same applies also to the heart tonics of the digitalis series. We believe that during the next year we should continue our work on these two classes of products in the most careful possible way, should take into consideration all new reports as they arise, as to method or manner of testing pharmaceutical products of these drugs and submit in due time definite reports in much the same manner as we have upon products of Cannabis Sativa and of the Suprarenal Gland.

During the course of our work the committee on physiological testing of the United States Pharmacopœial Revision Committee have suggested to us that this committee should cooperate with them. We shall attempt to do so as far as possible, in order that the combined efforts of the workers in this particular field may result in a unanimity of opinion as to the wisest course to pursue in the adoption of methods of physiological assay, standards and such, which may apply to that class of pharmaceutical and chemical products, which cannot be assayed by chemical means.

We believe it highly necessary that the association should endeavor to make arrangements with some central authority as the Bureau of Public Health and Marine Hospital Service, to keep and issue to those desiring them definite and positive standards of the preparations of these drugs, by which they can measure and standardize products as they are manufactured. We do not wish it understood that we should leave the matter to the American Public Health and Marine Hospital Service Laboratory to devise standards and such, but that we should cooperate with them. If it meets with the approval of the Association we believe it would be wise for the committee to be authorized to take this matter up in detail with the director of the American Public Health and Marine Hospital Service Laboratory, in order that it may be determined exactly what may be accomplished. Very sincerely yours,

(Signed) WORTH HALE.
CHARLES R. ECKLER.
W. A. PEARSON.
E. M. HOUGHTON,
Chairman.

<>

## PHYSIOLOGICAL ASSAY OF PHARMACEUTICAL PREPARATIONS OF CANNABIS SATIVA.

1. The activity of pharmaceutical preparations of Cannabis Sativa depends upon one or more active substances, which produce a characteristic intoxication in animals when given internally.

Preparations of Cannabis Sativa may be tested physiologically by observing the typical intoxicating effects produced by the active substances contained in the drug when the preparations are administered to selected test animals in suitably sized doses, under proper test conditions.

2. The animal best adapted for determining the value of preparations of Cannabis Sativa is a carefully selected dog, which shows a characteristic reaction to small doses of the drug.

3. The test animals should be given a purgative twenty-four hours before the test is to be made, and allowed to fast until ready for use, plenty of water being supplied. Two

dogs, preferably four, are taken for a test. On the first day of the test two of the animals receive .005 gms. to .01 gms. per kilo body weight of the standard extract Cannabis Sativa contained in a gelatine capsule administered per os. The other two animals are each given the same quantity of the unknown preparation of Cannabis Sativa administered under the same conditions. The quality and degree of the intoxication are carefully observed in the four animals. On the second, preferably the third day, when the animals have completely recovered, the dogs are again employed for testing the activity of the drug in the same manner as before, except that the two animals that received the unknown extract of Cannabis Sativa on the first day are given the known or standard on the second administration. The tests are repeated until the amount of the unknown can be determined as accurately as possible, that will produce the same quality and degree of intoxication as the definite quantity of the known extract of Cannabis Sativa. From this data can be determined the relative activity of the two samples of the preparation of Cannabis Sativa.

4. We believe, before this method of assay is adopted in the United States Pharmacopœia, arrangements should be perfected, so that some central authority, like the Bureau of Public Health and Marine Service Laboratory at Washington, would supply a standard extract of Cannabis Sativa to be employed by various manufacturers for standardizing their pharmaceutical preparations.

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## THE PHYSIOLOGICAL ASSAY OF THE BLOOD PRESSURE RAISING PRINCIPLE FOUND IN PREPARATIONS OF SUPRARENAL GLANDS.

1. The active principle of the suprarenal glands produces a characteristic quantitative rise in the blood pressure of anesthetized animals injected intravenously.

Preparations of suprarenal glands containing such active principle may be assayed quantitatively by comparing the MAXIMUM blood pressures produced by the injection of definite quantities of the preparation properly diluted into the circulatory system, with the MAXIMUM rise in blood pressure produced by the injection of definite quantities of similarly diluted active principle of the suprarenal glands UNDER THE SAME CONDITIONS.

2. The animal best adapted for the making of the blood pressure experiments for the determination of quantitative amounts of the active principle of the suprarenal glands, is the dog.

3. The test animal, the dog, should be anesthetized by some member of the fatty acid series, tri-chlor-tertiary-butyl-alcohol being especially recommended for this purpose.

4. The apparatus required is a mercury manometer with suitable connections properly arranged for making blood pressure tracings.

5. Method. The test animal is anesthetized about one-half hour before the test is to be made. When anesthesia is complete, the dog is fastened to a suitable board or warming-pan and the artery and vein chosen, a carotid artery and each femoral vein, are opened and glass cannulæ inserted, or the injections may be made into the vein through a small hypodermic needle.

6. The active principle, the standard, by which the value of the known shall be determined, should be chemically pure. This substance should be dissolved in freshly prepared physiologic salt solution, in the proportion of 0.000,01 gm. to 1 cc., or 1:100,000.

7. The unknown should be freshly prepared in physiologic SALT solution so that it will have approximately the same activity as the known. Two or more injections of the standard solution of the active principle of the suprarenal glands prepared as directed under 6 should be made into the vein chosen, and the rise in blood pressure observed in order to determine whether the animal is in a suitable condition for making a quantitative blood pressure measurement. If the animal has been found to react quantitatively to the known, then alternate injections of the solutions of the known, 6, and the unknown, 7, should be administered into the vein chosen, until the quantity of the solution of the unknown has been found, that will show the same rise in blood pressure under the same conditions as a given quantity of the standard. From this data can be figured the percentage strength of the unknown as compared with the known.

8. We believe that some central authority, like the Laboratory of the American Public Health and Marine Hospital Service should be requested to supply to such parties as wish to assay the active principles of the Suprarenal Glands, chemically pure Adrenalin or its equivalent Epinephrin as a standard.

# Practical Formulas

*Committee:*

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**Contributions to this department, or criticisms of formulas, may be sent to any member of the Committee.**

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## PROPOSED FOR A. PH. RECIPE BOOK.

(Continued from page 765.)

The numerous letters received give evidence that the pharmacists and A. Ph. A. members have appreciated my attempt of collecting formulas for different lotions, and I have therefore concluded to continue same and trust that the many formulas will prove of some value.

Your Chairman has also included a number of tried formulas for *"Summer Specialties,"* which can be pushed to advantage, commercially and professionally, by the pharmacist in the summer resorts, at the seashore and in the city.

Quite especially can the manufacture and sale of "lotions for the complexion" be made a source of revenue during the summer season, and consequently a number of formulas for such lotions are given.

Special attention has been paid to "Sunburn Lotions," that is for the prevention and also for the relief of sunburn, and directions for use are also given.

Lotions for the prevention of "Insect Bites" and also for the relief of mosquito or bee stings, are always in great demand during the summer, and consequently a number of formulas are given, some of which the writer has successfully used for years.

Suggestions are solicited.

Respectfully submitted,
OTTO RAUBENHEIMER, Chairman.

Abbreviations can be found in May JOURNAL, p. 504.

Formulas No. 1 to 22, see February JOURNAL, p. 169 to 173.

Formulas No. 23 to 30, see April JOURNAL, p. 366 to 368.

Formulas No. 31 to 41, see May JOURNAL, p. 505 to 506.

Formulas No. 42 to 50, see June JOURNAL, p. 637 to 638.

Formulas No. 51 to 77, see July JOURNAL, p. 761 to 765.

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No. 78.

## LOTIO AMYGDALÆ COMPOSITA.

Compound Almond Lotion.

| | |
|---|---|
| Mercuric Bichloride | 0.06 gm. |
| Ammonium Chloride | 0.5 gm. |
| Bitter Almond Mixture (No. 79) a sufficient quantity | |
| To make | 30 cc. |

Dissolve the Salts in the Bitter Almond Mixture. Used as a peeling lotion for freckles. Some dermatologists gradually increase the quantity of Mercuric Bichloride to 0.25 gm., which, however, must be done carefully.

<>

No. 79.

## MISTURA AMYGDALÆ AMARÆ.

Bitter Almond Mixture.
B. P. Cx.

| | |
|---|---|
| Bitter Almonds | 7.5 gm. |
| Distilled Water, a sufficient quantity | |
| To make | 100 cc. |

Blanch the Bitter Almonds in Cold Water and triturate with a little of the Distilled Water to form a thin paste. Then gradually add sufficient Distilled Water to make up the required volume, and strain.

This preparation is used as a basis for skin lotions. It must not be confused with the Emulsion of Almond, which is intended for internal administration and does not contain hydrocyanic acid, and which on account of its acacia and quite especially its sugar content, is not suitable as a lotion.

No. 80.

## LOTIO AMYGDALÆ ET BISMUTHI.

Almond and Bismuth Lotion.

| | |
|---|---|
| Bismuth Subnitrate | 6 gm. |
| Diluted Hydrocyanic Acid | 2 cc. |
| Bitter Almond Mixture (No. 79) a sufficient quantity | |
| To make | 125 cc. |

Mix well. Agitate before using.

The quantity of Diluted Hydrocyanic Acid is sometimes increased to 4 cc.

Used as an antipruritic in eczema, when skin is *not* broken.

<>

No. 81.

## LOTIO CALAMINÆ ET CRETÆ.

Calamine and Chalk Lotion.

| | |
|---|---|
| Calamine | 5 gm. |
| Prepared Chalk | 5 gm. |
| Diluted Hydrocyanic Acid | 2 cc. |
| Glycerin | 15 cc. |
| Lime Water | 100 cc. |
| Elder Flower Water, a sufficient quantity | |
| To make | 250 cc. |

Triturate the Prepared Chalk and the Calamine to a very fine powder, triturate with the Elder Flower Water and add the other ingredients.

Elder Flower Water or Aqua Sambuci is a distilled water, similar to rose water or orange flower water.

This is a cooling lotion used as an antipuritic in acute and subacute inflammation.

Dr. L. Duncan Bulkley.

<>

No. 82.

## LOTIO SULPHURIS COMPOSITA.

Compound Sulphur Lotion.

| | |
|---|---|
| Precipitated Sulphur | 5 gm. |
| Ether | 15 cc. |
| Alchol, a sufficient quantity | |
| To make | 125 cc. |

Mix well. Keep in well stoppered bottles and agitate before using.

Compound Sulphur Lotion is employed against acne (pimples), comedones (blackheads), and seborrhœa (excessive fatty secretion).

No. 83.

## LOTIO PHILLIPSONI.

Phillipson's Lotion.

Phillipson's Mixture.

| | |
|---|---|
| Glacial Acetic Acid | |
| Tincture of Benzoin | |
| Spirit of Camphor, of each | 6 cc. |
| Alcohol, a sufficient quantity | |
| To make | 100 cc. |

Mix.

Used in slight cases of excessive fat-secretion and its sequelæ, by rubbing on face three times a day.

Saalfeld Kosmetik.

<>

No. 84.

## AQUA COSMETICA ORIENTALIS HEBRA.

Hebra's Oriental Lotion.

| | |
|---|---|
| Mercuric Bichloride | 0.5 gm. |
| Tincture of Benzoin | 1 cc. |
| Bitter Almond Mixture (No. 79) a sufficient quantity | |
| To make | 100 cc. |

Dissolve the Mercuric Bichloride in the Bitter Almond Mixture and add the Tincture of Benzoin.

As this preparation deteriorates upon keeping, it should be freshly prepared.

Agitate well before using.

D. M.

<>

No. 85.

## AQUA COSMETICA LILIONESE.

Lilionese Lotion.

| | |
|---|---|
| Purified Talc | 100 gm. |
| Borax | 15 gm. |
| Potassium Carbonate | 5 gm. |
| Glycerin | 50 cc. |
| Tincture of Benzoin | |
| Cologne Water, of each | 25 cc. |
| Rose Water | 900 cc. |

Dissolve the Salts in the Rose Water and add the Cologne Water. Triturate the Purified Talc, which should be in very fine powder, with the Glycerin; add the Tincture of Benzoin and then gradually add the solution of the Salts in the Rose Water.

D. M.

No. 86.

## AQUA CHLORALO-TANNATA.

Chloral and Tannin Lotion.
"Captol" Substitute.

| | |
|---|---|
| Hydrated Chloral | 2 gm. |
| Tannic Acid | 1 gm. |
| Tartaric Acid | 1 gm. |
| Castor Oil | 2 gm. |
| Alcohol, 90 per cent | 89 gm. |
| Essence of Violet | 5 gm. |
| To make | 100 gm. |

Dissolve the first four ingredients in the Alcohol and add the Perfume.

Said to produce a similar preparation to "Captol," a German specialty and dandruff remedy.

Münchener Vorschriften.

<>

No. 87.

## AQUA CRINALIS CUM CHININO.

Eau de Quinine.

| | |
|---|---|
| Quinine Sulphate | 1 gm. |
| Cologne Water | 10 gm. |
| Glycerin | 50 gm. |
| Rum | 100 gm. |
| Alcohol, 90 per cent | 150 gm. |
| Rose Water | 600 gm. |

Dissolve the Quinine Sulphate in the Alcohol and add the other ingredients.

See also *Latio Quininae* No. 75.

Münchener Vorschriften.

<>

No. 88.

## LOTIO CANTHARIDINI.

Cantharidin Lotion.
Lotio Crinalis Stimulans.
Stimulating Hair Lotion.

| | |
|---|---|
| Cantharidin | 0.02 gm. |
| Acetone | 5 cc. |
| Castor Oil | 20 cc. |
| Alcohol, a sufficient quantity | |
| To make | 100 cc. |

Dissolve the Cantharidin in the Acetone, add the Castor Oil and the Alcohol.

B. P. Cx.

No. 89.

## LOTIO CRINALIS.

Hair Lotion.
(Sir Erasmus Wilson.)

| | |
|---|---|
| Almond Oil | 12.5 cc. |
| Stronger Ammonia Water | 12.5 cc. |
| Oil of Rosemary | 0.5 cc. |
| Alcohol | 50 cc. |
| Honey Water (No. 93), a sufficient quantity | |
| To make | 100 cc. |

Saponify the Almond Oil with the Ammonia Water and add the other ingredients, previously mixed together.

This is a stimulating hair lotion, resembling the one used by Sir Erasmus Wilson, and consequently commonly called by his name.

It is also prepared without oil and should in that case be specified *"sine oleo."*

B. P. Cx.

<>

No. 90.

## LOTIO GLYCERINI.

Glycerin Lotion.
"Glycerin and Rose Water."

Stronger Rose Water
Glycerin ..... equal volumes

According to the experience of the writer, the mixture of Glycerin and Rose Water always develops a fungus, which, however, does not form when the *Stronger* Rose Water is employed.—O. R.

<>

No. 91.

## LOTIO GLYCERINI BORATA.

Borated Glycerin Lotion.

| | |
|---|---|
| Boric Acid | 2 gm. |
| Stronger Rose Water<br>Glycerin ..... of each | 50 cc. |

Dissolve.

A superior, more antiseptic and healing lotion for chapped hands, etc.—O. R.

<>

No. 92.

## LOTIO GLYCERINI BORACIS.

Lotion of Glycerin of Borax.

| | |
|---|---|
| Glycerin of Borax (No. 59) | 30 cc. |
| Glycerin | 60 cc. |
| Rose Water, a sufficient quantity | |
| To make | 250 cc. |

Mix.

Ph. F.

No. 93.

## AQUA MELLIS.

Honey Water.

| | |
|---|---|
| Oil of Bergamot | 0.78 cc. |
| Oil of Lavender | 0.26 cc. |
| Oil of Cloves | 0.26 cc. |
| Oil of Sandal Wood | 0.05 cc. |
| Tincture of Musk | 1.56 cc. |
| Tincture of Saffron | 0.78 cc. |
| Stronger Rose Water | 15 cc. |
| Stronger Orange Flower Water | 15 cc. |
| Honey | 0.50 cc. |
| Alcohol, a sufficient quantity | |
| To make | 100 cc. |

Dissolve the Oils and Tinctures in the Alcohol, add the solution of the Honey in the Waters and filter.

B. P. Cx.

<>

No. 94.

## FRECKLE LOTION.

(Prof. Paschkis.)

| | |
|---|---|
| Potassium Carbonate | 60 gm. |
| Potassium Chlorate | 20 gm. |
| Borax | 15 gm. |
| Sugar | 60 gm. |
| Glycerin | 150 gm. |
| Rose Water | 330 gm. |
| Orange Flower Water | 355 gm. |

Dissolve.

D. M.

<>

No. 95.

## AQUA COSMETICA HUFELANDI.

Hufeland's Schönheitswasser.

| | |
|---|---|
| Bitter Almond | 5 gm. |
| Orange Flower Water | |
| Rose Water of each | 70 gm. |
| Borax | 6 gm. |
| Tincture of Benzoin | 14 gm. |

Prepare the emulsion according to the art, dissolve the Borax and add the Tincture, agitating well.

Hell.

<>

No. 96.

## AQUA COSMETICA ALBA.

Flüssige Weisse Schminke.

| | |
|---|---|
| Lead Carbonate | 50 gm. |
| Starch | |
| Talc of each | 25 gm. |
| Rose Water | 100 gm. |
| Orange Flower Water | 20 gm. |

Triturate the solids to a very fine powder and mix well with the liquids.

Hell.

Inasmuch as basic Lead Carbonate, or *"Cerussa,"* might produce more or less toxic effects, especially if used for some time and especially if there should be some abrasions of the skin, the writer has therefore successfully substituted the less poisonous Zinc Oxide or Zinc Carbonate.—O. R.

<>

No. 97.

## AQUA COSMETICA RUBRA.

Rotes Schönheitswasser.

| | |
|---|---|
| White Cosmetic Water (No. 96) | 220 gm. |
| Carmine, in fine powder | 0.3 gm. |

Mix well.

Hell.

<>

No. 98.

## LOTIO CONTRA PITYRIASIS.

Lotio Cephalica.

Lotion against Scales.

| | |
|---|---|
| Salicylic Acid | 1 gm. |
| Glycerin | 5 gm. |
| Alcohol | 94 gm. |

Dissolve.

Pharm. Ned.

<>

No. 99.

## LOTIO CONTRA SCABIES.

Itch Lotion.

Lotion contre la gale.

| | |
|---|---|
| Sulphurated Soda or Sulphurated Potassa | 1 part |
| Water | 4 parts |

Dissolve.

Codex.

<>

No. 100.

## LOTIO GLYCERINI BORATA.

Lac Glycerini—Glycerin Milch.

| | |
|---|---|
| Mucilage of Quince Seed (Prepared from 7 gm.) | 70 gm. |
| Soap, Medicinal | 1 gm. |
| Alcohol, 68 per cent | 1.5 gm. |
| Boric Acid | 2.5 gm. |
| Glycerin | 25 gm. |
| Oil of Lavender Flowers | 2 drops |

Dissolve the Soap in the Alcohol and mix with the Mucilage. Heat the Glycerin and Boric Acid until dissolved, mix with the mucilage and add the Oil.

Hess.

No. 101.

## LOTIO CRINALIS DETERGENS.

Detergent Hair Lotion.

Haar—Waschwasser.

| | |
|---|---|
| Borax | 5 gm. |
| Tincture of Quillaja | 15 gm. |
| Rum | 30 gm. |
| Orange Flower Water | 150 gm. |

Mix.

Hess.

<>

No. 102.

## LOTIO LANOLINI.

Lanolin Waschwasser.

Lac Lanolini.

| | |
|---|---|
| Lanolin | 15 gm. |
| Rose Water | 150 gm. |
| Soap, in powder | 1 gm. |
| Borax | 1.5 gm. |

Melt the Lanolin (*Hydrous* Wool-Fat) on a water bath, add the Soap and the Borax and incorporate the Rose Water, which is best done by agitation in a bottle.

It forms a homogeneous emulsion or milk.

Hell.

<>

No. 103.

## LOTIO MENTHOLIS.

Shaving Lotion.

| | |
|---|---|
| Menthol | 2.5 gm. |
| Tragacanth | 4 gm. |
| Glycerin | 12 gm. |
| Alcohol | 15 gm. |
| Water | 300 gm. |

Allow the Tragacanth to swell in the Water so as to form a homogeneous mucilage. Add the Glycerin and then the Solution of the Menthol in the Alcohol.

This preparation may be colored pink.

It is an excellent cooling lotion, especially after shaving.

Hell.

<>

No. 104.

## AQUA COSMETICA VIENNENSIS.

Eau Cosmetique de Vienne.

(Dr. Bernatzik.)

| | |
|---|---|
| Almonds | 15 gm. |
| Orange Flower Water<br>Rose Water, of each | 60 cc. |
| Borax | 1 gm. |
| Tincture of Benzoin | 2 cc. |

Blanch the Almonds and make an emulsion with the Waters, according to the art. Then add the Borax and Tincture.

Eulenburg's Real-Enzyklopädie.

<>

No. 105.

## LOTIO ROSÆ.

Rose Lotion.

Lac Rosæ—Milk of Roses.

| | |
|---|---|
| Almonds, blanched | 10 gm. |
| Curd Soap | 0.69 gm. |
| White Wax | 0.69 gm. |
| Almond Oil | 0.62 cc. |
| Oil of Bergamot | 0.62 cc. |
| Oil of Lavender Flowers | 0.16 cc. |
| Oil of Rose | 0.08 cc. |
| Alcohol | 15 cc. |
| Rose Water, a sufficient quantity<br>To make | 100 cc. |

Beat the blanched Almonds with seven times their weight of Rose Water, and add the resulting emulsion gradually to the Curd Soap, White Wax and Almond Oil, previously mixed by the aid of a gentle heat. Strain the emulsion, add the Oils dissolved in the Alcohol and sufficient Rose Water.

Curd Soap or Sapo Animalis B. P., is prepared by heating purified animal fat, consisting chiefly of stearin, with sodium hydroxide and water and separating the curd soap by the addition of sodium chloride.

B. P. Cx.

<>

No. 106.

## LOTIO ROSÆ VIRGINIALIS.

Lait virginial ã la rose.

(Hirzel.)

| | |
|---|---|
| Tincture of Tolu | 3 cc. |
| Rose Water | 200 cc. |

Misce secund. art.

Paschkis, Kosmetik.

<>

No. 107.

## LOTIO GLYCERINI COMPOSITA.

Compound Glycerin Lotion.

| | |
|---|---|
| White Wax | 2.50 gm. |
| Lard | 3.75 gm. |
| Soap, in powder | 2.50 gm. |
| Salicylic Acid | 0.02 gm. |
| Glycerin | 2.50 cc. |
| Almond Oil | 3.75 cc. |
| Oil of Rose | 0.10 cc. |
| Chloroform | 0.52 cc. |
| Distilled Water, a sufficient quantity<br>To make | 100 cc. |

Heat the Wax and Lard with the Almond Oil, on a water-bath until melted, and pour the mixture into a warm mortar. Then add the other ingredients and gradually add sufficient Distilled Water, stirring briskly after each addition, to produce the required volume.

It is recommended by the writer that the Water should be previously warm, as thereby a better preparation will be obtained.—O. R.

If about one-tenth of the Distilled Water in the above formula be replaced by neutral Cucumber Juice, then the product will resemble preparations sold under the name *"Glycerin and Cucumber."*

B. P. Cx.

<>

No. 108.

## LOTIO BENZOINI COMPOSITA.

Compound Benzoin Lotion.

| | |
|---|---|
| Tincture of Benzoin | 6.25 cc. |
| Tincture of Quillaja | 3.12 cc. |
| Cologne Water | 6.25 cc. |
| Distilled Water, a sufficient quantity | |
| To make | 100 cc. |

Mix.

B. P. Cx.

<>

No. 109.

## LOTIO STAPHISAGRIÆ.

Stavesacre Lotion.
Nursery Hair Lotion.

| | |
|---|---|
| Stavesacre, in coarse powder | 10 gm. |
| Acetic Acid, 33 per cent. B. P. | 5 cc. |
| Alcohol | 10 cc. |
| Oil of Geranium | 0.02 cc. |
| Oil of Lemon | 0.04 cc. |
| Glycerin | 5 cc. |
| Water, a sufficient quantity | |
| To make | 100 cc. |

Boil the powdered Stavesacre Seeds with the Acetic Acid and 80 cc. of Water for ten minutes in a covered vessel, set aside till cool, then add the oils, previously dissolved in the Alcohol; filter, add the Glycerin, and make up to the required volume with Water.

B. P. Cx.

No. 110.

## LOTIO DELPHINII.

Larkspur Lotion.

| | |
|---|---|
| Delphinium, ground | 100 gm. |
| Acetic Acid, U. S. P. | 50 cc. |
| Alcohol | 100 cc. |
| Glycerin | 50 cc. |
| Water, a sufficient quantity | |
| To make | 1000 cc. |

Boil the ground Larkspur Seed with the Acetic Acid, the Glycerin and 800 cc. of Water for 10 minutes in a covered vessel; set aside till cold, then add the Alcohol and allow to macerate over night. Then filter and add enough water through the filter to make the product measure 1000 cc.

This formula has been constructed by the writer, and is modeled after No. 109. It is supposed that the acetic acid and boiling water extract the alkaloids from delphinium, the chemistry of which is still somewhat unsettled.

This lotion has been sold in the writer's store for several months and has given universal satisfaction to the customers.

Larkspur Lotion has that great advantage over the alcoholic tincture, proposed for N. F. IV, of being much cheaper from an economic standpoint.—O. R.

<>

No. 111.

## PROTECTIVE LOTIONS.

Against Sunburn.

A

| | |
|---|---|
| Almonds blanched | 12 gm. |
| Tincture of Benzoin | 15 cc. |
| Orange Flower Water | 250 cc. |
| Rose Water, a sufficient quantity | |
| To make | 1000 cc. |

Prepare an emulsion, strain and lastly add the Tincture of Benzoin.

Peter MacEwan in Ph. F. gives the following directions for this Protective Complexion Lotion or Balm for preventing and soothing sunburn:

After washing, apply the lotion freely to the face and neck, wiping dry in one or two minutes. This should be done morning and evening, or oftener.

B

Lotions No. 102, 103, 104 and 105 are also well suited as Protective Lotions against sunburn.

C

MacEwan, in Ph. F., gives the following advice:

As to prevention of sunburn, no protection of a fatty nature should be applied, as in the scorching sun this will cause blistering. For example, application of petrolatum to the face in the morning is soothing at first in the sun, but by the afternoon or evening blisters are prominent. But if a weak glycerin lotion, etc., is applied in the morning, the skin merely becomes red by the afternoon and *then a* liberal application of petrolatum is beneficial.

While the writer agrees with Mr. MacEwan as to petrolatum being unsuitable, he must state, however, that lanolin creams, or cold creams, are in his opinion quite effective as a protection or preventative against sunburn.

<>

No. 112.

## SUNBURN LOTIONS.

A

| | |
|---|---|
| Zinc Oxide | 30 gm. |
| Borax | 15 gm. |
| Glycerin | 60 cc. |
| Bay Rum | 90 cc. |
| Water, or Aromatic Water, a sufficient quantity | |
| To make | 600 cc. |

Triturate the solids to a fine powder and gradually add the liquids so as to obtain a smooth mixture.

Ph. F.

B

| | |
|---|---|
| Zinc Oxide | 40 gm. |
| Glycerin | |
| Elder Flower Water | |
| Rose Water | of each 300 cc. |
| Solution of Cochineal | 1 cc. |

Mix well.

C

The following can also be used as Sunburn Lotions: No. 56, 57, 61, 61, 79, 85, 91, 100 and 102-105 incl.

D

Linimentum Calcis, U. S. P., is very effective, but still more so is

E

Linimentum Calcis cum Salalo.

| | |
|---|---|
| Phenyl Salicylate | 50 gm. |
| Linseed Oil | 500 gm. |
| Lime Water | 500 gm. |

Dissolve the Phenyl Salicylate in the Linseed Oil by agitation and then saponify with the Lime Water.

F

Linimentum Calcis cum Salolo et Mentholo.

| | |
|---|---|
| Phenyl Salicylate | 30 gm. |
| Menthol | 10 gm. |
| Linseed Oil | 500 gm. |
| Lime Water | 500 gm. |

Dissolve the Phenyl Salicylate and the Menthol in the Linseed Oil by agitation and then saponify with the Lime Water.

D, E and F have to be well shaken and are applied on pieces of linen saturated with the mixture. E has the advantage of combining Phenyl Salicylate as an antiseptic and F, which was originated by the writer, has the still further advantage of being cooling.

In very severe burns these oils or soaps can be painted on with a camel's hair brush.

O. R.

<>

No. 113.

## PREVENTIVE LOTION.

Against Insect Bites, Etc.

A

| | |
|---|---|
| Oil of Eucalyptus | 5 cc. |
| Spirit of Camphor | 30 cc. |
| Soap Liniment, a sufficient quantity | |
| To make | 60 cc. |

Mix.

Ph. J. F.

B

Tinctura Absinthii.
Tincture of Wormwood.
D. A. B. V.

| | |
|---|---|
| Absinthium | 200 gm. |
| Alcohol, 68 p. c., a sufficient quantity | |
| To make | 1000 cc. |

This is an excellent preventitive as insects literally hate it.

C

Tincture of Wormwood (No. 113 B) 8 cc.
Glycerin ..... 4 cc.
Eau de Cologne, a sufficient quantity
To make ..... 60 cc.
Ph. J. F.

D

Oil of Eucalyptus..... 20 cc.
Oil of Pennyroyal..... 20 cc.
Spirit of Camphor, a sufficient quantity
To make ..... 300 cc.

Has been successfully used by the writer as a mosquito preventitive lotion. O. R.

E

Thymol ..... 2 gm.
Alcohol ..... 50 cc.
Water ..... 50 cc.

Dissolve the Thymol in the Alcohol and add the Water.

This is an effective lotion which is not oily, does not stain and is preferred by particular people who object to pennyroyal odor, etc.

O. R.

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**No. 114.**

## MOSQUITO BITE LOTIONS.

**Anodyne Sting Lotions.**

A

Menthol ..... 5 gm.
Alcohol ..... 240 cc.
Stronger Ammonia Water..... 80 cc...
Dissolve.
Put one or two drops on the stung part.

B

Saturated Solution of Sodium Bicarbonate.
Perfume ..... q. s.
Apply as a lotion.

C

Thymol ..... 2 gm.
Spirit of Camphor..... 80 cc.
Stronger Ammonia Water..... 20 cc.
Dissolve.

According to my experience this lotion is very effective as a preventive as well as for mosquito bites. O. R.

(To be continued.)

## THE WASTE OF INERTIA.

In industrial economy we hear a great deal about "waste motion." The biggest waste of motion in the world today is the motion that is never made.

Humanity's most extravagant and least excusable source of waste is inertia. We are creatures of habit — we are reluctant to act without a precedent. If we bump into something new, different, unusual, we simply discard it as unbelievable—until someone else has tried it out and has got the jump on us.

What then? Shall we believe all we hear — swallow everything at first sight? Far be it! Here's the safe rule, and a very old authority; "Prove all things, hold fast to that which is good." But how in the name of good business judgment can you prove anything without inquiry and investigation? —*Southern Journal of Pharmacy.*

## PELLAGRA.

During 1911 Dr. Louis W. Sambon, Lecturer to the London School of Tropical Medicine and Parasitologist to the Wellcome Research Laboratories, visited the best known pellagra centres in Roumania, Transylvania, the Austrian Tyrol, the French Landes, and Spain. On his travels he collected much confirmatory evidence of his theory arrived at during his researches in Italy as Chief of the Pellagra Field Commission that the disease is propagated through the agency of a small biting-fly belonging to the family *Simuliidae,* and not by unsound maize. The funds for the first researches were provided by the Pellagra Investigation Committee, but subsequently they have been defrayed entirely by Mr. Henry S. Wellcome.—*The Chemist and Druggist.*

## Editorial Notes and Announcements

JAMES H. BEAL, Editor.....Scio, O.

All communications for insertion in the JOURNAL, or respecting advertising should be sent to the Editor.

The Association does not accept responsibility for the opinions of contributors. Offensive personalities must be avoided.

Under the rules of the Post Office the JOURNAL can be regularly mailed only to bona-fide paid subscribers. Subscriptions and association dues should be sent to the Treasurer, H. M. Whelpley, 2342 Albion Place, St. Louis, Mo.

Requests for back numbers, and claims for missing numbers should be sent to the Editor.

Claims for missing numbers will not be allowed if sufficient notice has not been given of change of address, and in no case if received later than sixty days from the date of issue.

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### REPRINTS.

If the request is made at the time copy is submitted, authors will be furnished with not to exceed 50 reprints, without cover, of papers accepted for publication in the JOURNAL.

Larger numbers of reprints will be supplied by the Stoneman Press Co. at the following prices, provided the order is received before the type has been distributed:

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200 copies, 12 or 16 pages, no cover, $6.50, with cover, $8.00.

Orders for reprints may be sent either to the Editor, or to the Stoneman Press Co. Columbus, Ohio.

### DR. WHELPLEY KNOWS.

Dr. H. M. Whelpley says that editors are "we" or "us" because the troubles of an editor are more than one man can bear. After wrestling with the vagaries of linotype composition through ten successive issues of the JOURNAL *we* are ready to admit that Dr. Whelpley knows what he is talking about.

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### PROF. J. U. LLOYD AS A WORLDS' FAIR COMMISSIONER.

Governor Judson Harmon, of Ohio, has named Prof. J. U. Lloyd, of Cincinnati, as one of the Ohio commissoners to the Panama-Pacific exposition, to be held at San Francisco to celebrate the opening of the Panama canal. Prof. Lloyd is now on the ground helping to select a site for the Ohio State Building, and incidentally making arrangements for the A. Ph. A. meeting there in 1915. (Perhaps.)

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### A BELATED CREDIT.

The JOURNAL is indebted to "Paper," the leading organ of the American paper trade, edited by T. J. Keenan, formerly of the American Druggist, for the cut used in the report of the Eighth International Congress of Applied Chemistry, in the October issue, and for portions of the text of that report. Information as to the source of the material was not received in time to give credit when the article was printed.

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### A JUDICIOUS REWARD OF MERIT.

Wm. A. Holstrom, Ph. G., of Huron, South Dakota, made the highest rating before the Board of Pharmacy of that state in 1912, and as a reward the South Dakota Pharmaceutical Association has nominated him to membership in the A. Ph. A., and has paid his first year's dues. Mr. Holstrom is to be congratulated upon winning so worthy a prize, and the South Dakota Association is to be complimented upon its judgment in making so wise a selection of a prize to offer.

## A STRONG EDITORIAL TEAM.

Otto Raubenheimer, of Brooklyn, has been selected as Editor, and Prof. William Mansfield, of the New York College of Pharmacy, as Associate Editor of the Practical Druggist, of New York. The new staff thus represents both theory and practice, a combination that should place the Practical Druggist in class A among drug magazines. Both editors are loyal and active members of the A. Ph. A., and have been frequent contributors in the JOURNAL in the past, as we trust they will be in the future. The JOURNAL, and all A. Ph. A. members wish them the fullest measure of success.

# The Bulletin Board

## DINNER IN HONOR OF MR. E. H. THIESING.

The Ohio Valley Druggists' Association on Tuesday Evening, September 24th, tendered a surprise Banquet at Meidel's Summer Place to Mr. E. H. Thiesing, in recognition of the splendid services which he has rendered to the drug trade not only in this community, but throughout the country. Every member of the Ohio Valley Druggists' Association who could possibly arrange to be present was in attendance, and the gathering was one of the largest which has ever taken place in the history of the Local Association.

After full justice had been done to the splendid dinner, President Ehlers for the first time intimated the purpose of the occasion, and during a review of the history of the Ohio Valley Druggists' Association, its activities, its importance in the work of the National Association of Retail Druggists, and the services which some of its members had rendered as officers of The National Association, the speaker came to touch in particular upon the unselfish and able services rendered by Mr. Thiesing, and at that point the entire gathering rose spontaneously to sing a song in honor of Mr. Thiesing specially arranged by Mr. Henry J. Dusterberg. It was the very first inkling to Mr. Thiesing that the evening was to be devoted to doing him honor, and consequently his surprise was more than complete. Still further surprises however awaited him, and after having to listen to the well deserved praise because of his many efforts in behalf of the retail drug trade, he was finally made the recipient of a beautiful clock set in solid mahogany, as a lasting token of the appreciation and the high regard in which he is held by the entire Association Membership.

After the presentation many of the members present were called on, including Ex-President Kutchbauch, Edw. Voss, Jr., Victor Muhlberg, Ferd Ott, Frank H. Freericks, Otto Groenland, Edwin Heinemann, A. D. Wells, F. W. Kisker, Harry F. Freking, all of whom joined in expressions of high regard for the honored guest. Ex-President Kutchbauch in particular dwelt upon the many notable characteristics of Mr. Thiesing, his devotion to duty, and special fitness for taking a leading position in Association work.

The pleasures of the evening ended with a general resolve to next year re-elect Mr. Thiesing to the Executive Committee of the National Association, which desire was emphasized with three cheers and a tiger.

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## IMPROVED STATUS OF PHARMACISTS IN THE NAVY.

The Naval Appropriation Bill passed by Congress at its last session contains the following:

"That pharmacists shall after six years from date of warrant be commissioned chief pharmacists after passing satisfactorily such examination as the Secretary of the Navy may prescribe, and shall, on promotion, have the rank, pay and allowances of chief boatswains."

The naval pharmacists of the United States several years ago, by the earnest work of the pharmacists of the whole United States, led by the American Pharmaceutical Association, secured the position and pay of warrant officers and rank in the Navy which carries from $1,500 to $2,500 salary a year and warrants by the President.

The Naval Appropriation Bill now causes the naval pharmacists to rank as the other warrant officers, i. e., they will be commissioned and have the rank and pay of ensigns, which is equivalent to second lieutenant on land.

When the American Pharmaceutical Association started their work a few years ago

in behalf of the pharmacists in the United States Navy, the only persons that the said pharmacists outranked were the negro cooks. The rank of warrant officers was secured some time ago, but now for the first time in the history of American pharmacy the chief pharmacists of the American Navy will be commissioned officers.

The pharmacists in the navies of rearly all civilized countries have long held commissions, and in this respect the United States has been very backward.

The work of the American pharmaceutical Association in behalf of the pharmacists in the service of the United States just before the Spanish-American War caused the elimination of foreigners in the United States Army, Navy and Marine Hospital Service, which has so pleased the American public. The association made the argument that the United States Government places should be filled by American citizens, and if capable American citizens could not be secured at the salaries offered, the salaries should be made larger. Congress agreed with the A. Ph. A. and salaries were made larger and foreigners were largely elminated from the army, navy and marine hospital pharmaceutical service of the United States.

GEORGE F. PAYNE.

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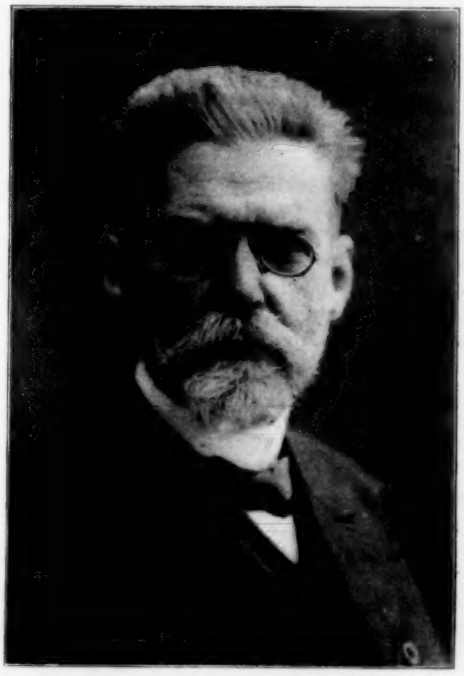
## HERMANN SCHELENZ.

Hermann Schelenz, the German pharmaceutical hstorian, was born on April 9, 1848, in Kempen, Posen, near the Russian border. Owing to surroundings he became well acquainted with the Polish and Russian language, besides the native German. He visited the "Realschule" at Breslau, Silesia, and the "Gymnasium" at Krotoschin, and entered pharmacy in 1864 in the "Apotheke" at Carlsruhe, Upper Silesa. His leisure he utilized for pharmaceutical, chemical, botanical and other scientific studies, prepared herbaria for himself and other pharmacists and also obtained distinction by answering a pharmaceutical prize question. In 1867 he passed his state examination as assistant with the mark "excellent." For some years he was employed in the well known pharmacy and laboratory of Lehmann at Rendsburg, a relation to one of the founders of the Philadelphia College of Pharmacy. During the Franco-Prussian war he served at Spandau and through conversation with French prisoners learned to speak their language fluently. He graduated from the University Greifswald, being a class mate of E. G. Goetting, a prominent member of the New York Deutsche Apotheker Verein and the American Pharmaceutical Association. At Griefswald he also learned Italian and English and became quite a linguist. Although Prof. Limpricht asked him to become assistant to



HERMANN SCHELENZ, Cassel, Germany.
(Elected Honorary Member of the A. Ph. A., at the Sixtieth Annual Convention.)

the celebrated chemist, Prof. Kraut, at Hanover, Schelenz preferred to stay in retail pharmacy and took charge of the "Apotheke" and laboratory of his former employer, Lehmann, at Rendsburg, and became owner in 1875. He greatly increased his business and also entered the field of manufacturing pharmacy with success. Owing to ill health, he sold his business in 1893, and moved to Cassell, Hessia, and devoted himself entirely to pharmaceutical and especially historical studies. As early as 1870, Schelenz showed his literary abilities and has been a steady contributor to pharmaceutical and scientific literature ever since. In 1878 he published the first "Pharmakognostische Karte" (Phar-

macognostic map to the pharmacopœias of Europe), which twenty-five years later was enlarged and republished.

Among the great many papers by Schelenz the following are of special interest to the pharmaceutical profession: Der Apotheker in der Literature (The Apothecary in Literature), Decoctum Zittmanni, Opodeldoc, The Soda Process, Cataplasma Kaolini (translated by Otto Raubenheimer and published in the A. J. Ph), Runge, the Apothecary, the father of the aniline dyes; Araberspuren in chemischen Kunstausdrücker (Arabic origin of chemical nomenclature), etc., etc. Schelenz also wrote the history of the Pharmazeutische Zeitung and of the Zentralhalle, for the jubilee numbers of both journals.

Of late years he has made a special study of Shakespeare and has published a series of papers on the pharmaceutical, chemical and medical knowledge of the poet. Schelenz is also the author of a number of larger works, i. e., Kosmetik; Frauen in Reiche Aescaulaps (Women in the realm of Aesculapius); Pflanzensammlungen und Kräuterbücher (Herbaria and Herb Books), etc. His masterwork, however, is "Geschichte der Pharmazie." (History of Pharmacy), a book of 1000 pages, a complete history of pharmacy, chemistry, botany and materia medica, from the earliest times to the present day This "standard" work will remain an everlasting monument to the author. Schelenz has been greatly honored in Germany by being chairman of the committee for the examination of apprentices, chairman of the Schleswig-Holstein Branch of the Deutsche Apotheker Verein, member of the Commission for the improvement of the status of pharmacists in the military service, etc., etc. At present he is treasurer of the Deutsche Gesellschaft für Geschichte der Medizin und Naturwissenschaften (German Association for the History of Medicine and natural sciences.)

The reputation of Schelenz extends far beyond the "Vaterland." He is a corresponding member of the Association pharmaceutique de la province de Liége, an honorary member of the Société de pharmacie d' Anvers, and he is well acquainted personally or by correspondence with scientists over the entire world. The American Pharmaceutical Association has honored Schelenz and has also honored itself by electing him an honorary member at the Denver Convention in 1912.

Let us hope that Schelenz, the "father of pharmaceutical history," will become better known even in America, and that the knowledge of the history of pharmacy will be more appreciated by pharmacists throughout the world.

OTTO RAUBENHEIMER.

## Proceedings of the Local Branches

"All papers presented to the Association and its branches shall become the property of the Association, with the understanding that they are not to be published in any other publication than those of the Association, except by consent of the Committee on Publication."—By-Laws, Chapter X, Art. III.

Reports of the meetings of the Local Branches should be mailed to the editor on the day following the meeting, if possible. Minutes should be *plainly* written, or typewritten, with wide spaces between the lines. Care should be taken to give proper names correctly, and manuscript should be signed by the reporterr.

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### SAINT LOUIS BRANCH, ANNUAL MEETING.

At the annual meeting of the Saint Louis Branch of the American Pharmaceutical Association held in the Saint Louis College of Phamacy, 2110 Locust street, on Friday evening, October 18, the present officers were re-elected unanimously to serve another year: President, William K. Ilhardt; First Vice-President, J. A. Wilkerson; Second Vice-President, Arthur C. Schulte; Treasurer, Carl T. Buehler; Secretary, William H. Lamont; Advisory Board, Delta E. Combs, Louis Lieberstein and N. Emery Williams.

Charles Geitner, member of the State Board of Pharmacy, and H. O. A. Huegel, President of the Missouri Pharmaceutical Association, read splendid papers, the subject being "Comments on the Missouri Pharmacy Law," pointing out some of its inconsistencies and technicalities. Many good points were brought out in the discussion led by Professor Francis Hemm and Doctor Leo Suppan.

The next meeting of the Branch will be held in the Saint Louis College of Pharmacy on Friday evening, November 22.

WILLIAM H. LAMONT, Secretary.

## NASHVILLE BRANCH.

The Nashville Branch of the A. Ph. A. met in regular session October 10, 1912, in Furman Hall at Vanderbilt University, with President J. O. Burge in the chair.

The meeting was devoted almost exclusively to a discussion of plans for the entertainment of the American Pharmaceutical Association meeting here next year.

A general entertainment committee was appointed with Dr. E. A. Ruddman as chairman which included every member of the A. Ph. A. in the state of Tennessee.

From this general committee the necessary sub-committees will be selected.

The Branch decided to recommend the Council the week beginning August 25, 1913, as the date of the annual meeting of the Association, the weather usually being very pleasant at that time of the year. A tentative program was decided on which has been sent to Secretary Beal for criticism or approval.

Ira B. Clark and W. R. White were appointed a committee to select a suitable hall and make the other necessary arrangements for having a get-together-meeting of all the druggists of the city, together with their wives and sweethearts.

An invitation was accepted to attend the next meeting of the Nashville Branch of the American Chemical Society Friday night, October 18, at Furman Hall, when interesting papers will be read by Dr. E. A. Ruddiman and R. W. Balcom, both noted chemists in the U. S. Pure Food Service.

WILLIAM R. WHITE, Secretary.

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## CHICAGO BRANCH.

The Chicago Branch of the American Pharmaceutical Association held its first Branch meeting of the season, Tuesday evening, October 15, at the University of Illinois School of Pharmacy. The feature of the evening was a very interesting talk by Professor Clark, who showed a large number of pictures taken by him and Professor Snow during the recent Convention in Denver, these being projected on the screen by the new Balopticon made by the Bausch & Lomb Optical Company, and in charge of Mr. Skelton.

A Committee on Program was appointed by President Wells consisting of Professor A. H. Clark, Professor C. W. Patterson and Mr. C. H. Avery. Several of our members present gave in brief form their impressions of the recent Convention in Denver and discussed the new phases of Association work which were developed there, especially the newly created House of Delegates, its functions and its prospects. President Wells spoke of the honor paid to the Chicago Branch in the installation of its Secretary as President of the Association and referred to the fact that Mr. F. W. Meissner and Mr. S. K. Sass, both of whom were present at the Branch meeting, are nominees for the office of President and Third Vice-President, respectively; that Professor Snow had been elected First Vice-Chairman of the House of Delegates and Professor Clark, President of the Conference of Pharmaceutical Faculties.

Secretary Day was authorized to set the date for the November meeting after consultation with other local organizations, so as to avoid a conflict of dates.

About thirty members of the Branch and their ladies were present at this meeting, and the officers feel much encouraged over the outlook for the season.

W. B. DAY, Secretary.

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## CITY OF WASHINGTON BRANCH.

The October meeting of the local branch of the American Pharmaceutical Association was held October 16, 1912, at the National College of Pharmacy, with President Lewis Flemer presiding.

A communication from the president of the Association, urging the cooperation of the members of the local branch in the efforts of the Association to increase its membership, was read and received, and upon the motion of Dr. Hilton, seconded by Dr. Richardson, the secretary was directed to prepare a list of druggists in Washington who would make satisfactory members of the Association.

Following the disposition of routine business, Dr. W. S. Richardson presented and read a paper reviewing the convention of the N. A. R. D. held at Milwaukee and that of the American Pharmaceutical Association at Denver. His report was accepted and made a part of the minutes of the meeting.

Dr. Richardson, in addition to presenting his report, discussed, informally, the progress that had been noted at each of these conventions, and commented very favorably

upon the reception which was given the delegates to both of the conventions in the cities where they were held.

Following Dr. Richardson's paper, Dr. M. I. Wilbert read a paper reviewing the proceedings of the Eighth International Congress of Applied Chemistry.

The last paper of the evening was that of Dr. L. F. Kebler, who reported the progress made at the last annual meeting of the Association of Official Agricultural Chemists, with particular reference to that part devoted to pharmaceutical chemistry.

Dr. Kebler, in additon to presenting his report, discussed numerous problems which had confronted this Association with regard to foods, insecticides, and fertilizers.

The meeting was one of the most interesting that has ever been held by this local branch, and all of the papers were treats.

Dr. S. L. Hilton will read at the November meeting a paper on habit-forming drugs, and in addition thereto a discussion of the influence of commercialism in pharmacy will be had.

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## PHILADELPHIA BRANCH.

The first regular meeting of the Philadelphia Branch, A. Ph. A., was held conjointly with that of the Scientific Section on Tuesday evening, October 1, 1912, at 8:15 o'clock, at the Engineers' Club, 1317 Spruce street.

The change in location of meeting place was made in response to several suggestions as to the greater convenience of a more centrally located room than that formerly engaged for our meetings.

The following program was presented:

"The New House of Delegates of the A. Ph. A.," by Mr. J. W. England.

"The New Section on U. S. P. and N. F.," by Mr. E. Fullerton Cook.

"The Scientific Work of the Denver Meeting, A. Ph. A.," by Mr. C. E. Vanderkleed.

"The Work of the Section on Education and Legislation," by Mr. John C. Wallace.

"Results Achieved at the Convention, P. Ph. A.," by Mr. Charles H. Lawall.

"The Work of the N. A. R. D. at Milwaukee," by Mr. S. C. Henry.

"The Convention of the American Medical Association," by Dr. F. E. Stewart.

An encouraging start was made at the first meeting by the election to membership of two prominent pharmacists, namely, Prof. John H. Sturmer, the new incumbent of the Chair of Pharmacy at the Medico Chirurgical College, and Mr. Robert W. Fischelis, who is connected with the same institution.

Mr. Franklin M. Apple was elected member of Council A. Ph. A. in place of Mr. Robert Cadmus, resigned.

Mr. England's contribution—printed in full elsewhere—occasioned considerable discussion, some of the members expressing the opinion that the personnel of the new House of Delegates might be more or less undesirable, and further, that such a body was in danger of becoming altogether unwieldly.

Mr. E. Fullerton Cook, in reporting the new section on U. S. P. and N. F., suggested by Dr. Oldberg, stated that the suggestion was tentatively tried out at the Denver meeting, by setting aside one sesson of the Scientific Section. Three important papers were presented at the session, all being related to the progress of revision of the two books. The speaker stated that a tremendous volume of communications had been circulating between the members of the several committees and that the work of revision was well advanced. N. F. IV is practically ready to be issued, but the Committee recommended that the publication be delayed so that it may appear simultaneously with U. S. P. IX, for the following reasons: Preventing duplication of titles; harmonizing all requirements of a general nature, such as methods for taking physical constants, carrying out sterilization, etc.; avoiding an immediate revision of N. F. IV to include articles requiring standardization whch may be deleted from U. S. P., allowing the satisfactory completion of Part II N. F., by including definitions and tests wherever needed.

The advantages of the new section having been demonstrated during this trying-out session, a resolution recommending a permanent section on U. S. P. and N. F., was unanimously adopted.

Prof. Charles H. LaWall, reporting the convention of the P. Ph. A., described the meeting as being a harmonious blending of affairs social, scientific and legislative, the latter being harmonious in spots, however, since there seemed to be much diversity of opinion as to what was really desirable in the way of legislation. The speaker was doubt-

ful that any effective legislation was imminent because of the varying ideas of the members of the State Association. Many excellent papers were presented, the result of the diligent efforts of Chairman Stroup, and altogether the Pennsylvania meeting was an eminently successful one.

In the absence, on account of illness, of Mr. S. C. Henry, an interesting report of the N. A. R. D. convention was made by Mr. Charles Rehfus, who described it as a good meeting with Philadelphia well represented. He referred to the honors which came to Pennsylvania in the selection of the President and a member of the Executive Committee from its ranks of pharmacists, and said much credit was due to the loyal enthusiasm of the Pennsylvania delegates. The speaker stated that the apparent decrease in membership was due to the fact that only paid up members remained on the list of members. Propaganda work was to be taken up and pushed vigorously all over the country, and price protection was still in the formative stage.

With Dr. Kimberly in the Chair, Dr. Stewart gave an interesting outline of the work of the Section on Pharmacology, at the A. M. A. convention. Much argument had been brought forth over the limitations of materia medica, some counselling a very restricted list, while others argued in favor of the "open door." This topic, and that of patents and trade marks, consumed much of the time of the Section, and the general tendency was in the direction of a sensible solution of the problems.

Messrs. Wallace and Vanderkleed, being unavoidably absent, their contributions were not presented.

Among those taking part in the discussions were Messrs. Stroup, Cliffe, Apple, Boring and Brinton.

AMBROSE HUNSBERGER, Sec'y.

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## PITTSBURGH BRANCH.

The first of the series of meetings of the Pittsburgh Branch of the American Pharmaceutical Association for 1912-13 took place Friday evening, October 11, at the College of Pharmacy. President Wm. B. Day, of Chicago, who is at the head of the parent association showed his deep interest in this Branch in a communication read by the secretary in these kind words: "About this time of year your Branch holds its first meeting of the winter season. I extend my greeting and best wishes for a successful year for the Pittsburgh Branch. I hope that you will be able to interest a larger number of pharmacists than ever before and that you may materially add to your membership."

Dr. J. A. Koch presented a deeply interest-in report of the work accomplished and underway of the American Conference of Pharmaceutical Faculties, which clearly indicates that in the near future that any pharmacist who graduates from a reputable school of pharmacy will, owing to the constantly added pre-requisite requirements that are being laid down, have surely earned his degree. The Conference proposes that before conferring the degree of Gaduate in Pharmacy a student will have to have a three years course of instruction. That to earn the degree of Doctor of Pharmacy the recipient must have received four year's instruction.

Dr. Louis Emanuel in reporting the meeting of the American Phamaceutical Association held in Denver, said it is difficult for one to cover the ground for reason that so many sections covering different branches of the work are all held simultaneously, hence no fellow can possibly take them all in, and consequently one must necessarily elect which section will interest him most and stay with that section and depend upon the printed reports for what the others may have done, and he would leave that method to the members present. However he might say something of interest concerning his trip to Denver and give his impressions of the western country. He expressed disappointment at not having realized the anticipations he had formed of the gold country. Instead of finding the precious metal lying about loose on the ground he was surprised to learn that it was just as difficult to get hold of, and the formula for each fellow securing his share, the same as he had always found it at home.

The N. A. R. D. convention at Milwaukee was reported upon by B. E. Pritchard, who touched only upon those issues of most vital interest to members of the Branch, which included the progress of the U. S. P. and N. F. propaganda for reform in the practice of prescription writing, the reports of what had

been accomplished during the year in Pharmacy laws, national legislation and fraternal relations between the various organized bodies in pharmaceutical affiliation. These subjects he brought out in most of their most instructive details.

Discussion of proposed Pennsylvania Pharmacy Legislation was the most important and livest feature provided in the program for the session and it was opened by B. E. Pritchard who laid before the members present those features of the proposed bill which have provoked the strongest opposition and endeavored to show the reasons for their being incorporated and to point out the beneficial results that are sure to obtain if the proposed act becomes a law. Those who participated in the discussion were Drs. Judd, Emanuel and Koch, President Andrew Campbell and several of the senior students of the College of Pharmacy.

Dr. Judd fears that the medical fraternity will oppose the bill because of that provision which aims to compel a dispensing physician when dispensing official preparations to supply only such as conform to official requirements, and that a change in the reading may provoke less antagonism from that source. Dr. Judd offered as a motion that the following amendment be made: That section 18, line 21 read "That drugs purchased for dispensing and administration shall conform to the standards of strength, quality and purity as fixed by the laws of this Commonwealth." The motion was supported by Dr. Koch and the resolution approved.

Dr. Koch moved, supported by Dr. Emanuel, that it is the sense of the Pittsburgh Branch of the A. Ph. A. that an amendment be adopted that will permit the sale of heavy chemicals, such as are usually sold by storekeepers, under the law without applying for a license. This motion was approved. Dr. Emanuel suggested that such articles as are meant by the title "heavy chemicals" be enumerated in the act.

Several queries of a practical nature found in the Question Box were taken up and the information sought for by the querists referred to any one present competent to answer. One only was satisfactorily disposed of, the others referred for research results to be reported at next meeting. President Campbell urged those present to bring before the Branch any problem pertaining to pharmacy or drug store practices for elucidation, and that druggists be requested to send to the secretary any question upon which information may be useful.

B. E. PRITCHARD, Secretary.

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## NEW YORK BRANCH.

A regular meeting of the New York Branch of the American Pharmaceutical Association was held on the evening of October 14th, with Chairman G. C. Diekman presiding and seventeen persons present.

The minutes of the preceeding meeting were not read. The report of Treasurer Joseph Weinstein was duly received.

For the committee on the progress of pharmacy Otto Raubenheimer gave the salient features of the following recent contributions to periodical pharmacal literature: A report of a committee of the Austrian government investigating the influence of cultivation upon oil of peppermint; a paper on "The Manufacture of Tablets by the Pharmacist" (*Pharm. Post*); a collection of formulas for nostrums (*Centralb. d. Pharm*); "Comments on the Austrian Pharmacopoeia" from the laboratory of G. Hell & Company (*Pharm. Post*); a contribution on the toxicity of methyl alcohol, by Haussmann (*Pharm. Post*); a report of the first congress of the pharmacists of Poland (*Pharm. Post*); a reported new adulterant of tyrolean saffron; a review of twenty-five years' progress in synthetic medicines in Germany; a paper before the Brussels Pharmaceutical Society, in which the author favored the return of used medicine bottles to the pharmacist because the latter could sterilize them and thus lessen the danger of their subsequent use; and an account of an unsuccessful attempt to declare illegal the use of the name "artificial Carlsbad salt" in Hungary.

There was considerable discussion of the matter of the reuse of medicine bottles. This developed into an interesting talk on the bacteriological contamination of utensils generally. Messrs. Diner, Raubenheimer, Lehman, Unna, Anderson, Arny, and others contributed to this discussion, and the ubiquitousness of the bacterium was variously declared.

Supplementary to the report of Mr. Raubenheimer, Prof. H. V. Arny made a number of brief references to articles recently ap-

pearing in the *Journal Suisse de Chemie et Pharmacie*. One of these having to do with the antiformin method of precipitating tubercle bacilli in the examination of sputum, was discussed by Messrs. Weinstein, Diner, and Roemer, all of whom had for some time been using modifications of the method described.

Prof. William Mansfield remarked in connection with a reference to the microscopy of honey, made by Prof. Arny, that the department of agriculture had issued some very interesting pamphlets about honey.

Secretary Hugh Craig reported briefly for the special committee on a plan for the certification of pharmacies. This committee held its third meeting October 22nd, and will meet with the committee of the Medical Society of the County of New York at an early date.

Prof. W. C. Anderson pointed out the salient features of the N. A. R. D. meeting at Milwaukee. He called particular attention to the indication of a desire on the part of that organization to work in close cooperation with the A. Ph. A. and to the firm stand taken against the unrestricted sale of narcotics. Several of the more important resolutions adopted at the convention were read by Prof. Anderson who likewise gave a synopsis of the work of the association in the legislative, telephone, and propagandic field.

Secretary Craig related some of the impressions left upon him by the Denver meeting of the A. Ph. A. The formation of a House of Delegates, the organization of a Section on Pharmacopoeia and National Formulary, and the inception of a national legislative conference, were to him the most important features of the meeting. It was his opinion that the House of Delegates would add to the complication already existing in the procedure of the annual meetings; that the invitation to delegates would bring about a multitude of resolutions now unthought of; and that the sessions of the House would attract members to the disadvantage of the regular Sectional meetings. Mr. Craig recounted several other interesting actions of the meeting, spoke of the gratifying financial condition of the association, and pointed out that the branch had six members in the new official family of the parent organization.

Otta Raubenheimer gave a general review of the Eighth International Congress of Applied Chemistry, and told somewhat in detail the proceedings of the Section on pharmaceutical chemistry. He pointed out that a well-known member of the A. Ph. A., Prof. J. P. Remington, had been chairman of the Section; that the vice-chairman, Prof. Virgil Coblentz, and the acting secretary himself, were members of the Branch; and that members of the Branch and parent organization constituted the large majority of those contributing papers.

Prof. Anderson called attention to the fact that druggists were liable to be prosecuted under the child labor law because of ignorance of the provisions of that statute. He said that inspectors were busy looking for infractions of the law; and that, not even in an emergency, could a druggist employ as a messenger, for instance, a child under the age of fourteen years at any time, or one under the age of sixteen before 8 o'clock in the morning or after 7 o'clock at night. Children between the ages of fourteen and sixteen could be employed in the day time f they had the proper certificate from the board of health and this was on file with the employer.

The Branch adjourned at 11:10 o'clock, to meet November 11th.

HUGH CRAIG, Secretary.

## Council Business

### COUNCIL LETTER No. 1.

Philadelphia, October 21,1912.

To the Members of the Council:

The following letters have been received by the Secretary of the Council:

C. Lewis Diehl: "Acknowledging your let ter of 29th inst., I wish to express my profound appreciation of the honor, which has been extended to me by the vote of the American Pharmaceutical Association. directing you to convey to me its cordial greetings and wishes for my welfare. I thank you!"

Edward Kremers: "Your letter dated September 19th was duly received and should have been replied to sooner had it not been for the large amount of work incident to the opening of another academic year. I desire to express my appreciation of the action on the part of the Council. I note what you say with regard to the storage of the historcal material belonging to the A. Ph. A., and

will await further communication from Secretary Beal."

Thomas F. Main: "I have your notification of my election as Honorary President of the American Phamaceutical Association. Be kind enough to convey to the members of the Council my sincere thanks for this mark of their esteem, and assure them of my great appreciation of the honor conferred upon me. That our officers and members may continue to work together for the advancement of our beloved Association into ever widening fields of usefulness is my earnest hope."

*Insurance Policies.*—General Secretary J. H. Beal has turned over to Treasurer H. M. Whelpley, Fire Insurance Policy No. 42,240 in the Michigan Fire and Marine Insurance Co., covering $500.00 insurance on type, books, etc., expiring, June 28, 1913. The premium is $2.75. Also Fire Insurance Policy No. 1564 in the Hartford Fire Insurance Co., covering $1500.00's insurance on books and printed matter, expiring October 18, 1914, the premium benig $15.00. Also Fire Insurance Policy No. 137 in the Aetna Insurance Co., covering $1500.00 on books and printed matter expiring October 30, 1914, the premium being $15.00.

These policies have been placed in the A. Ph. A. safe deposit box at the Title Guaranty Trust Co., St. Louis.

President J. G. Godding in his annual address at the Denver (1912) meeting (Journ. A. Ph. A. September, 1912) stated that:

"At the present time the Department of Pharmaceutical Formulas has published 100 recipes in the Journal of the American Pharmaceutical Association. Many are in local use. Heretofore, when needed they were not to be found without much searching and then with varying success as to reliable directions in compounding. It seems desirable that these formulas should be the forerunner of the American Pharmaceutical Association Recipe Book; the publishing of such a book would probably add prestige and revenue to this Association."

With reference to the recommendation, the Committee on President's address reported as follows:

The recommendations of the Committee was adopted by the General Session on August 21, 1912 and the question is now before the Council.

It will be recalled that a Committee on A. Ph. A. Recipe Book reported to the Council on May 8, 1911 (A. Ph. A. Bulletin 1911, 261) making recommendations on the advisability of publication, scope and character, and plans and details of publication; and it was decided that these formulas should first be published in a department on pharmaceutical formulas in the new journal of the A. Ph. A. before publication in book form. This has been done.

What is the wish of the Council with reference to publishing the formulas in book form?

*Motion No. 1: (Purchase of Pamphlet Cases).*—Moved by J. W. England, seconded by J. H. Beal, that the General Secretary be authorized to purchase one hundred (100) Pamphlet Cases for the preservation of pamphlets and other documents now at the General Secretary's office. The appropriation has been approved by the Finance Committee.

*Motion No. 2: (Election of Members).*—You are requested to vote on the following applications for membership:

"The recommendation that the Association undertake the publication of the Book of Recipes, of a popular character, covering a wide range, is approved, and the Council is recommended by the Committee to take the necessary steps to carry this recommendation into effect, due care being exercised in the compliation of the recipes so that they may prove uniformly reliable."

No. 1. James Martin Barclay, Sgt. U. S. Army, Hosp. Corps, Camp Downes, Manila, P. I., rec. by W. B. Day and C. C. Young.

No. 2. Elden Barker Davis, Ebensburg, Pa., rec. by Fred J. Blumenschen and A. F. Judd.

No. 3. M. E. Jaffa, Director, Bureau of Food and Drugs, State Board of Health, University of California, Berkeley, Cal., rec. by J. H. Beal and J. W. England.

No. 4. Angelus Andrew Battista, Sussex St., Tenino, Wash., rec. by J. H. Beal and J. W. England.

No. 5. Edward H. Jenkins, Drawer 1, New Haven, Conn., rec. by J. H. Beal and J. W. England.

No. 6. Harry Cook, Sgt. Hosp. Corps, Military Hospital, Augur Barracks, Jolo, P. I., rec. by Arthur Neville and Carl T. Benche.

No. 7. Francis Joseph Stuart, 3964 Wyoming St., St. Louis, Mo., rec. by Delta E. Combs and J. W. Mackelden.

No. 8. Harley Dale Starkey, Scio, Ohio, rec. by J. H. Beal and J. W. England.

No. 9. Andrew H. Beardsley, 117 W. Franklin St., Elkhart, Ind., rec., by J. H. Beal and J. W. England.

No. 10. Romaine Pierson, 108 Fulton St., New Yok, N. Y., rec. by Otto Raubenheimer and J. H. Beal.

No. 11. George Frederick Freymark, 513

Merchant St., Ambridge, Pa., rec. by J. A. Koch and Fred J. Blumenschein.

No. 12. Curt Louis Dauber, Mascoutah, Ill., rec. by H. M. Whelpley and J. W. Mackelden.

No. 13. James William Morrison, 310 W. Washington St., Chicago, Ill., rec. by Wm. B. Day and E. N. Gathercoal.

No. 14. Edwin John Backus, Ph. G., 2403 W. North Ave., Chicago, Ill., rec. by F. W. Meissner and J. H. Beal.

No. 15. Ernest C. Finch, Waverly, Tenn., rec. by J. O. Burge and Wm. R. White.

No. 16. Michael Henry Corrigan, 1654 Westminster St., Providence, R. I., rec. by William O. Blanding and James O'Hare.

No. 17. Nicholas F. Reiner, 1 Westminster St., Providence, R. I., rec. by William O. Blanding and James O'Hare.

<>

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Wulling, F. J., University of Minnesota, Minneapolis, Minn.

Very truly yours,

J. W. ENGLAND,
Secretary of the Council.
415 N. 33rd St.

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**All changes of address of members should be sent to the General Secretary promptly.**

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